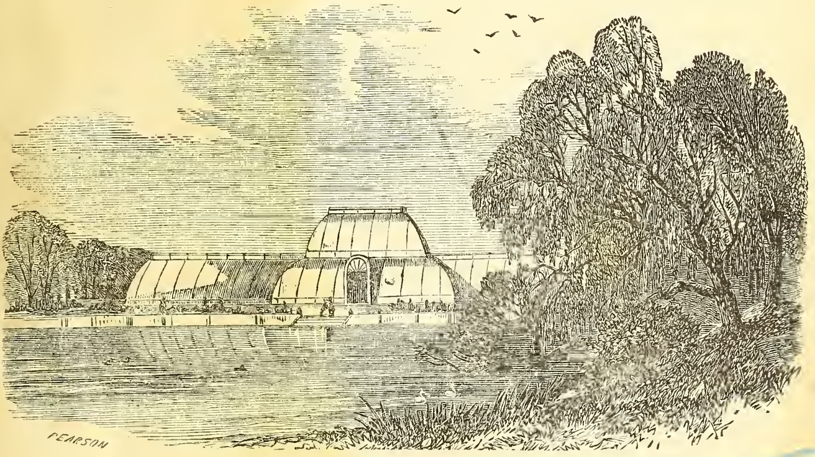
SHOUT
SHARE
IT

CURTIS'S
BOTANICAL MAGAZINE,

COMPRISING THE
Plants of the Royal Gardens of Kew,
AND
OF OTHER BOTANICAL ESTABLISHMENTS IN GREAT BRITAIN,
WITH SUITABLE DESCRIPTIONS;

BY
SIR JOSEPH DALTON HOOKER, M.D., C.B., K.C.S.I.,
P.R.S., F.L.S., ETC.
D.C.L. OXON., LL.D. CANTAB., CORRESPONDENT OF THE INSTITUTE OF FRANCE.

VOL. XXXIII.
OF THE THIRD SERIES.
(*Or Vol. CIII. of the whole Work.*)



> "With such a liberal hand has Nature flung
> Their seeds abroad, blown them about in winds,
> Innumerous mix'd them with the nursing mould,
> The moistening current, and prolific rain."
>
> *Thomson*, '*The Seasons.*'

Smithsonian Institution
246334
National Museum.

LONDON:
L. REEVE AND CO., 5, HENRIETTA STREET, COVENT GARDEN.
1877.
[*All rights reserved.*]

PRINTED BY TAYLOR AND CO.,
LITTLE QUEEN STREET, LINCOLN'S INN FIELDS.

QK
1
C986
Bot

TO

HENRY JOHN ELWES, ESQ., F.L.S., F.Z.S., ETC.

OF PRESTON HOUSE, CIRENCESTER.

Dear Mr. Elwes,

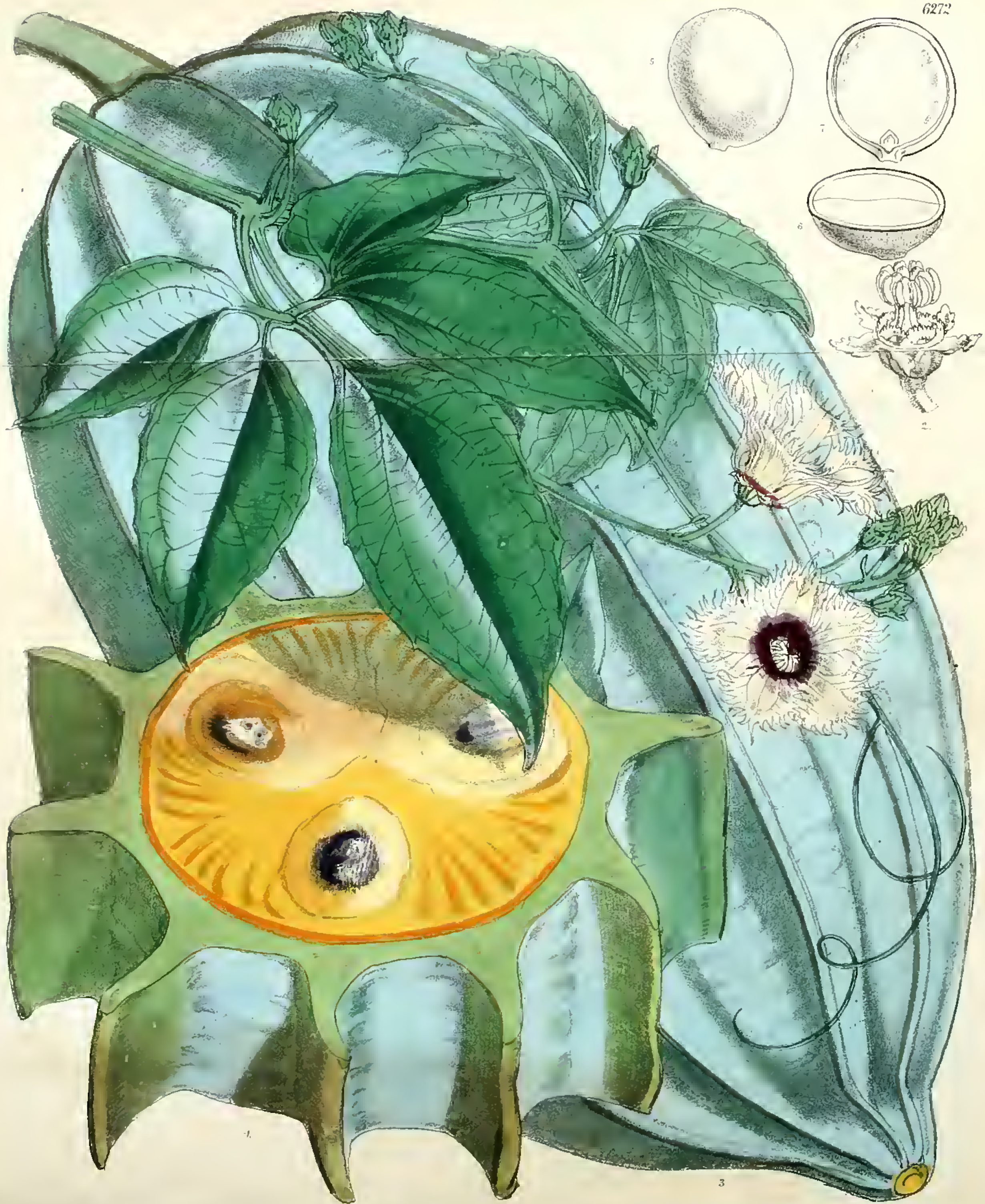
Allow me to dedicate to you this volume of the Botanical Magazine, as a tribute to the zeal, intelligence, and success, with which you have pursued Horticultural Botany, and the liberal spirit in which you have laboured to advance its best interests as a traveller, a collector, and an author.

Believe me to be,

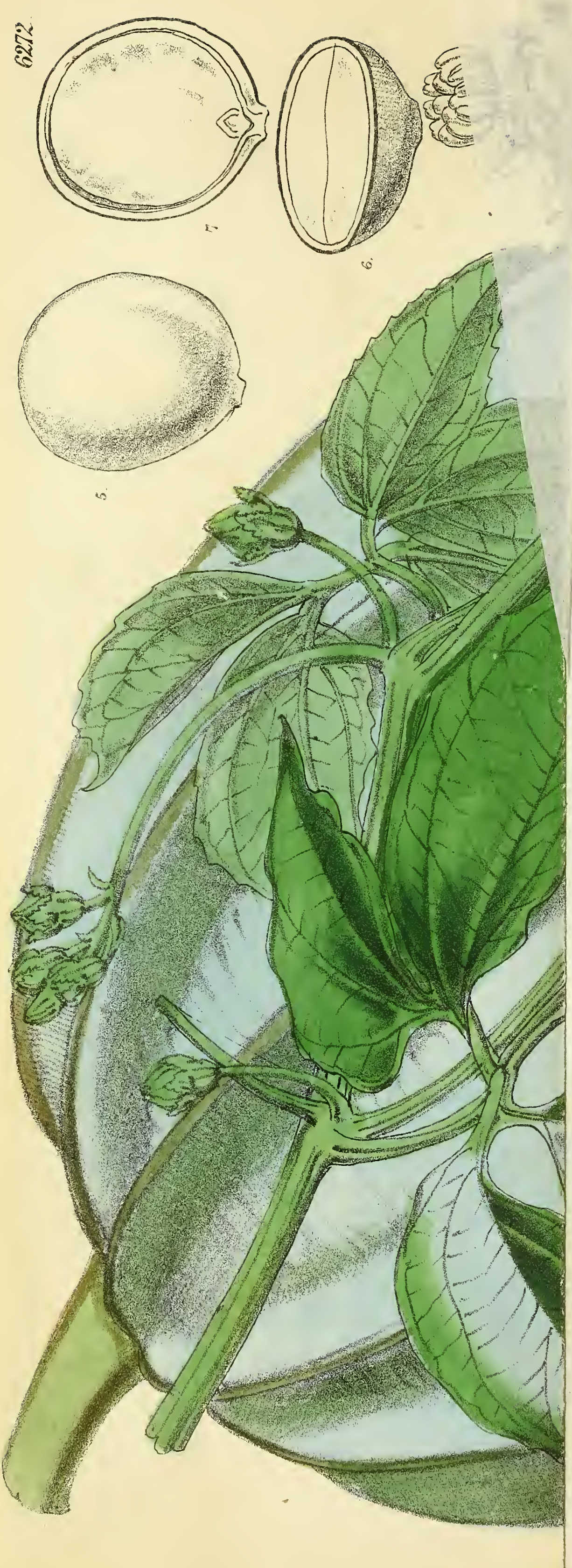
Very sincerely yours,

JOSEPH D. HOOKER.

6272



W. Fitch del. et lith. Vincent Brooks Day & Son Imp.


6272
5.
6.
7.

TAB. 6272.

TELFAIRIA OCCIDENTALIS.

Native of Western Tropical Africa.

Nat. Ord. CUCURBITACEÆ.—Tribe CUCUMERINEÆ.

Genus TELFAIRIA, *Hook.* (*Benth. et Hook. fil. Gen. Plant.* vol. i. p. 821).

TELFAIRIA *occidentalis*, foliis longe-petiolatis pedatim 5-foliolatis, foliolis petiolulatis elliptico-ovatis acuminatis repando-dentatis basi 3-plinerviis, calycis tubo hemispherico lobis brevibus latis serratis, corolla campanulata alba disco purpureo lobis rotundatis breviter fimbriatis, bacca 1–2-pedali ovoidea alte decaptera, alis crassis.

T. occidentalis, *Hook. f. in Oliv. Fl. Trop. Afric.* vol. ii. p. 524.

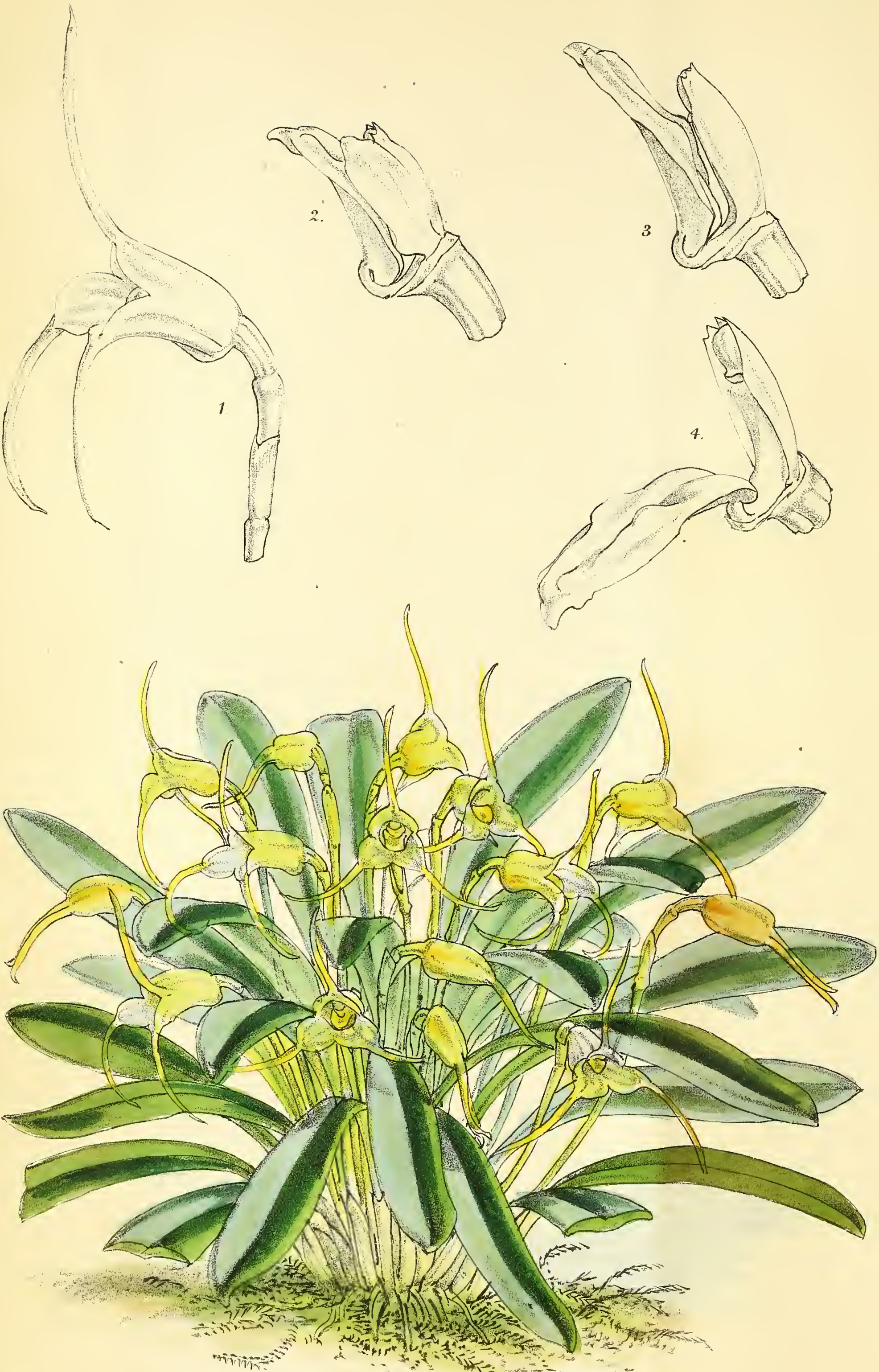
The original and for fifty years the only known species of this singular genus is *T. pedata*, Hook. (Bot. Mag. t. 2751–3; *Feuillea pedata*, Sm. ibid. t. 2681). A native of Eastern Tropical Africa (Zanzibar). It is described at great length in this work, and as having a fruit three feet long, full of seeds as large as chestnuts (one contained 264 of these), which are as excellent as almonds, have a very agreeable flavour, and yield an abundance of oil equal to that of the finest olives; it is called kouémé by the natives of Zanzibar, and "oil plant" in the Mauritius, where it was cultivated in former times.

T. occidentalis is the West African representative of the East African species, distinguished by the triplinerved leaflets, short ovary, short calyx-lobes which are simply serrated, the smaller more open white corolla with smooth fringes and a red purple eye, and by the few broad wings to the fruit; the fruit of *T. pedata* having no wings, but many very deep grooves. It is cultivated in West Africa for the sake of its seeds, which are boiled and eaten by the natives, and have been imported as oil-nuts into England. We have dried specimens from Sierra Leone, Abebokuta, Old Calabar, Fernando Po, and Angola, where it was found by Welwitsch, growing commonly over littoral hedges of *Euphorbia aphylla*. Our plant was raised from seed presented by Mr. Tyerman, late of the Liverpool Botanic Gardens, in 1870; it flowered in the Palm House in September, 1876.

Descr. An extensive climber, glabrous (except the pubescent young parts, petioles, and racemes) with a stout, fleshy perennial root, and very slender angled and grooved stem and branches. *Leaves* alternate, petioled, pedately five-foliolate; leaflets three to six inches long, shortly petiolulate, elliptic-ovate, obtusely acuminate, sinuate-toothed, triplenerved at the base, with many transverse veins, membranous, bright green. *Tendrils* bifid. *Male racemes* a foot long, six- to ten-flowered; bracts small. *Flowers* one and a half to two inches in diameter; pedicel slender, one inch long. *Calyx-tube* hemispherical, grooved; lobes broadly triangular-ovate, obtuse, serrate. *Corolla* broadly campanulate, white, with a purple eye; segments fimbriate. *Stamens* five, two of them four-celled, one one-celled, connective dilated; filaments three, free. *Fruit* two feet long, ovoid-oblong, obtusely beaked, yellow-green, with ten thick wings an inch deep, three-celled, and flesh of golden yellow pulp. *Seeds* horizontal, one and a quarter inch diameter, very numerous, nearly orbicular, compressed; testa brown, coriaceous; cotyledons plano-convex, fleshy.—*J. D. H.*

Fig. 1, Branch with male flowers; 2, flower with course removed; 3, fruit; 4, tranverse section of do.; 5, seed; 6, tranverse; and 7, vertical section of do.: all but fig. 2 of the *natural size.*

6273



W. Fitch del et Lith

Vincent Brooks Day & Son Imp

TAB. 6273.

MASDEVALLIA ATTENUATA.

Native of Costa Rica.

Nat. Ord. ORCHIDEÆ.—Tribe PLEUROTHALLIDEÆ.

Genus MASDEVALLIA, *Ruiz. and Pav.* (*Lindl. Gen. et Sp. Orchid, p.* 192).

MASDEVALLIA *attenuata;* parvula, dense cæspitosa, foliis patulis lineari-obovatis imo apice 3-denticulatis in petiolum subelongatum angustatis crasse coriaceis dorso carinatis facie canaliculatis, scapis 1-floris gracilibus foliis brevioribus glaberrimis, bractea ovario breviore obtusa, floribus parvis pedicellatis albidis v. stramineis caudibus flavis, perianthio ½-poll. longo campanulato-tubuloso subtus basi gibbo breviter 3-lobo, lobis in caudas patenti-recurvas filiformes tubo fere duplo longiores abrupte angustatis, petalis oblongis obtusis, labelli inclusi lamina linguæformi apice unguiculato, disco carinis 2 distantibus medio tumidis percurso, columna apice denticulata.

M. attenuata, *Reich. f. in Gard. Chron.*, 1871, p. 834.

The genus *Masdevallia* appears to be coming into cultivation as fast as the Indian Dendrobes were some ten to twenty years ago, and from a somewhat similar cause to that of the *Dendrobes.* This was owing to the residence of two accomplished amateurs (Parish and Benson) in the previously unexplored head-quarters of the genus; in that of *Masdevallia* it was owing to similar explorations of the previously little-known mountains of Costa Rica, New Granada, and Peru.

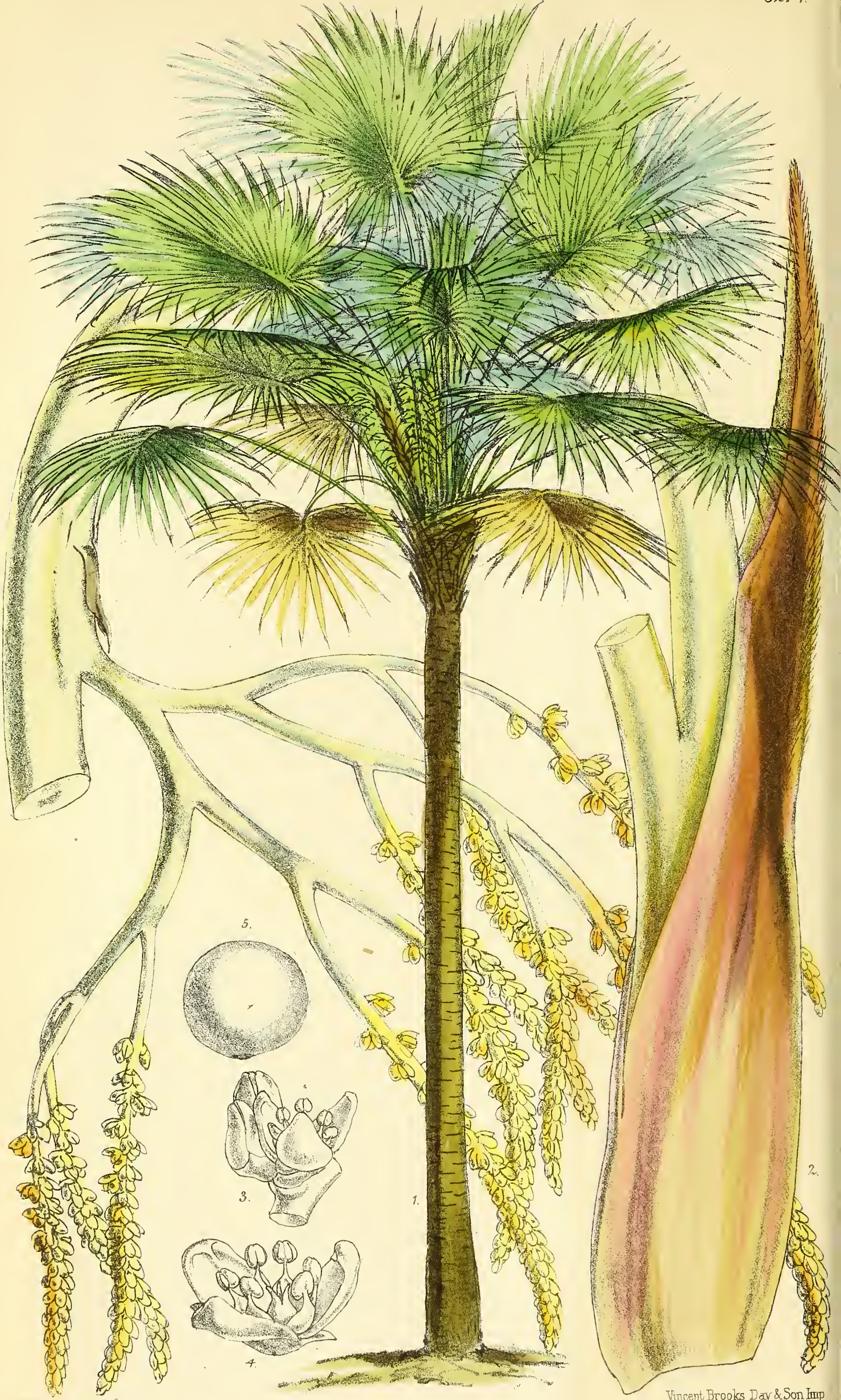
M. attenuata is one of Mr. Veitch's introductions, and flowered in the Royal Gardens in December, 1874, from specimens presented by Mr. William Saunders.

Reichenbach remarks that the dried native specimens have the perianth glabrous within, whilst that of the fresh ones is finely velvety; the contrary of which is frequent in Masdevallias.

DESCR. A small, densely-tufted species, with very numerous leaves and flowering scapes. *Leaves* with the petioles three to four inches long, spreading and almost recurved; blade one and half to two inches long, by one-third of an inch broad, narrowly oblong-ovate, minutely three-toothed at the tip, very coriaceous, keeled at the back, grooved in front, narrowed into the slender petiole. *Scapes* one-flowered, shorter than the leaves, very slender; bract short, obtuse, placed below the ovary and shorter than it, whence the flower appears pedicelled. *Flowers* white, with pale green along the tube opposite the sepaline lobes, and bright yellow tails. *Perianth-tube* narrowly campanulate, gibbous below at the base; lobes rounded, suddenly narrowed into slender recurved tails which are almost twice as long as the tube. *Petals* oblong, very shortly clawed, obtuse. *Lip* straight, yellow, linear-oblong, with an obtuse claw at the tip, and two keels on the face, which are rather dilated in the middle. *Column* green, toothed at the tip.—*J. D. H.*

Fig. 1, Top of scape, bract, and flower; 2, top of ovary, petals, lip, and column; 3, lip and column; 4, the same with that lip deflexed:—*all magnified.*

6274.



W. Fitch del et Lith

Vincent Brooks Day & Son Imp

TAB. 6274.

LIVISTONA AUSTRALIS.

Native of Eastern Temperate Australia.

Nat. Ord. PALMEÆ.—Tribe CORYPHINEÆ.

Genus LIVISTONA, *Br.* (*Endl. Gen. Plant.* p. 252).

LIVISTONA *australis;* caudice 50–80-pedali, petiolis gracilibus arcuatis marginibus spinosis, foliis saturate viridibus orbiculatis ad medium fissis, spatha stricta 6–12-pollicari lanceolato-cymbiformi acuta rufo-fulva villosa, spadice elongato cernuo ramosissimo glaberrimo ramulis curvis, fl. masc. minutis ramulis tenuibus spicatis vix $\frac{1}{10}$ poll. diam., sepalis brevibus latioribus quam longis, petalis crasse carnosis triangulari-ovatis subacutis valvatis, filamentis brevibus dilatatis, antheris brevibus parvis, fructu globoso, pericarpio indurato minute granuloso intus crustaceo, semine globoso, albumine æquabili osseo intus sacculo a chalaza dilatata ad centrum extenso instructo, embryone supra-basilari.

L. australis, *Mart. Hist. Palm.*, 241, *cum tab.; Wendland and Drude, Palm. Austral. in Linnæa*, vol. xxxix. p. 232, t. iii. f. 5; *F. Muell. Fragr. Phyt. Aust.* vol. v. p. 49.

CORYPHA australis, *Br. Prodr.* p. 123.

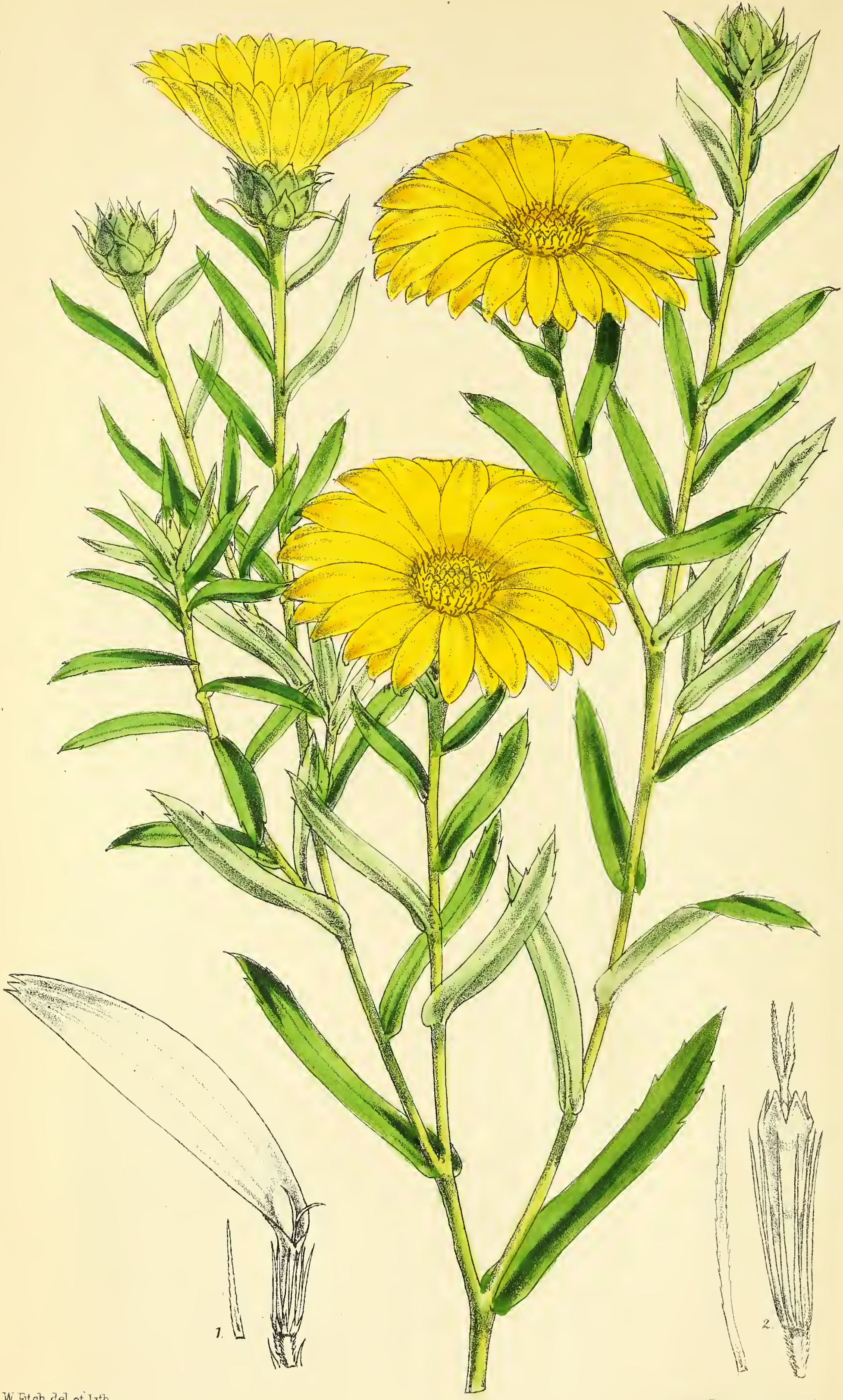
This graceful palm was for many years one of the greatest ornaments of the Palm House at Kew, rearing its massive head of bright green foliage supported on a rich brown caudex, high above all the other palms except *Cocos plumosa* and *Caryota urens.* During the present year having reached the roof on the west side of the centre, it was felled and replaced by a *Phœnix dactylifera* which will take years to assume the same proportions, and never rival it in beauty.

Livistona australis is the most southern palm of the Australian continent, reaching the snowy range in lat. 37° 30′ S. when its trunk attains 80 ft. in height, and extending thence along the west coast to the Illawarra River, in lat. 34° 45′ S. It flowered annually at Kew, in the spring months, for many years. The fruits I have received from Mr. Hill, of the Brisbane Botanical Gardens; they resemble specimens brought by Brown, preserved in the British Museum, except in having a thicker and harder pericarp.

Descr. *Trunk* forty to eighty feet high, cylindrical, slender, red-brown, marked with circular scars. *Leaves* in a dense oblong crown; petiole spreading and decurved, spinous on the margins; blade three to four feet in diameter, orbicular, cut to about the middle into thirty to fifty radiating slender bifid lobes, the acuminate points of which do not droop. *Spathes* six to ten inches long, lanceolate, compressed, acuminate, rigidly leathery, tomentose. *Spadix* three to four feet long, decurved, much paniculately branched, the branches and branchlets curved and slender, quite glabrous, rachis compressed. *Flowers* minute, one eighth of an inch in diameter, spiked upon the very slender terminal branchlets, green. *Calyx* of three short very broad obtuse segments. *Corolla* of three triangular-ovate fleshy coriaceous valvate subacute petals. *Stamens* six, filaments very broad and short; anthers subglobose. *Rudimentary pistil* three-cleft. *Fruit* globose, three-quarters of an inch in diameter; pericarp thick, crustaceous, granular outside, with a smooth buff obscurely veined inner surface; remains of stigma evanescent. *Seed* globose, testa pale brown, smooth, veins invisible; chalaza a brown subterminal large polished areole. *Albumen* very hard, white, not ruminate, with a broad sac-like canal passing from the chalaze to the centre, and full of corky brown tissue; embryo dorsal above the base.—*J. D. H.*

Fig. 1. Whole plant *reduced;* 2, portion of male spadix of the *natural size;* 3, portion of spadix and flowers; 4, single flower; *all enlarged;* 5, fruit of the *natural size.*

6275



W Fitch del. et lith.

Brooks Day & Son Imp

Tab. 6275.

XANTHISMA texanum.

Native of Texas.

Nat. Ord. Compositæ.—Tribe Asteroideæ.

Genus Xanthisma, *DC.* (*Benth. et Hook. f. Gen. Plant.* vol. ii. p. 253).

Xanthisma *texanum*, glaberrimum v. scaberulum gracile, parce ramosum, rigidiusculum, ramulis tenuibus virgatis, foliis sparsis parvis sessilibus lineari-oblongis obovatisve aristato-acuminatis cartilagineo-serrulatis 1-nervis aveniis, capitulis terminalibus solitariis breviter pedunculatis, involucri hemispherici bracteis coriaceis nitidis obtusis cuspidatis, receptaculo plano alveolato paleaceo, floribus flavis radii ♀ 1-seriatis ligula oblonga apice 3-dentata disci ⚥ tubulosis 5-dentatis, styli ramis subulatis hirtis, acheniis obovoideis, pappi setis rufis rigidis subpaleaceis achenio multo longioribus.

X. Drummondii, *DC. Prod.* vol. v. p. 94; *Torr. Bot. Marcy Exped. t.* 10, *sine descript*; *A. Gray, Plant. Wright*, vol. i. p. 98.

Centauridium Drummondii, *Torr. and Gr. Fl. N. Am.* vol. ii. p. 246.

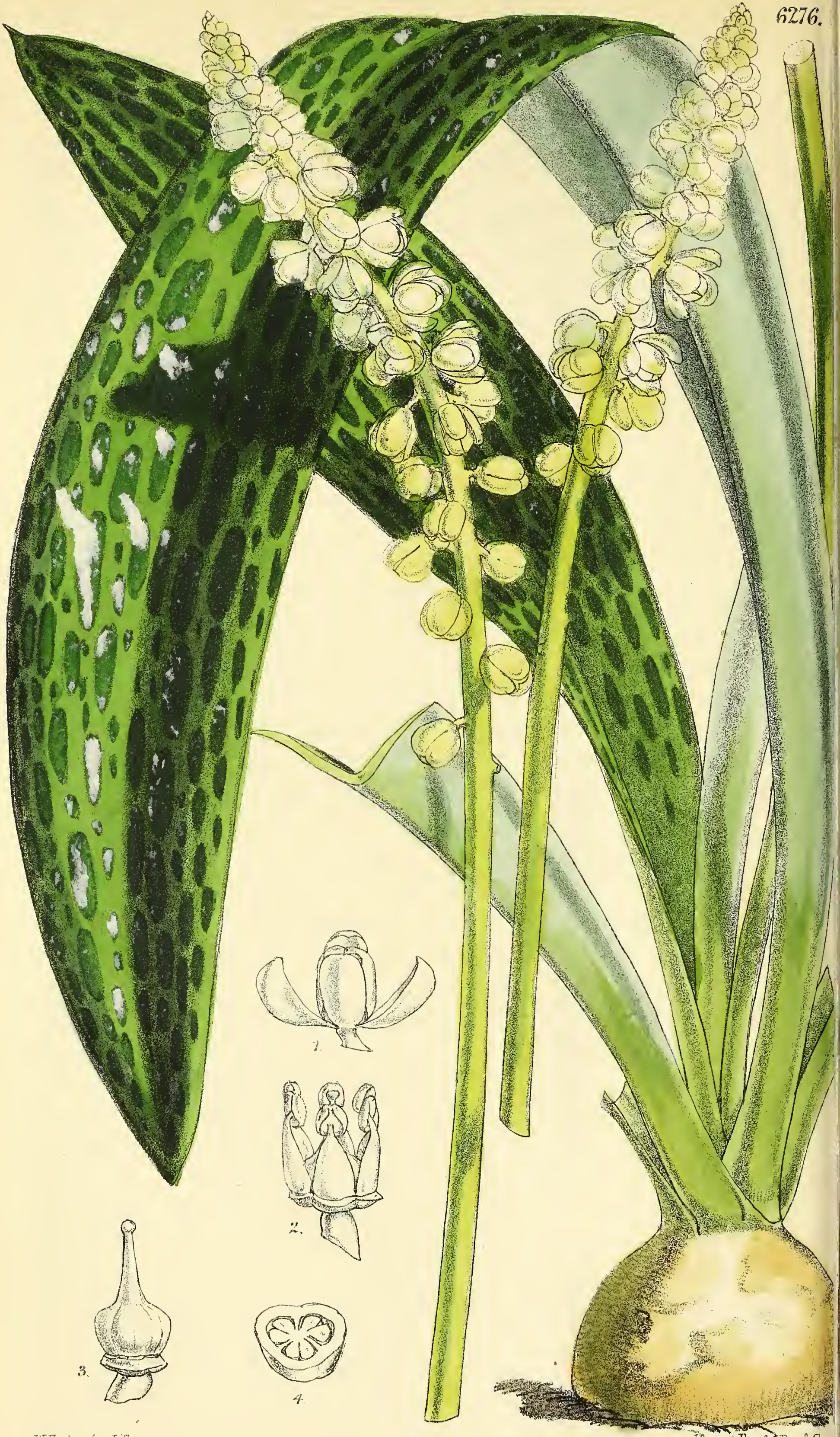
A very handsome Centaury-like hardy annual, with golden flowers, discovered in Texas some fifty years ago, and since found by many collectors, but never introduced into European gardens till within the last few years. It was published both in Europe and America, and as a new genus, first as *Xanthisma,* by the elder De Candolle in the Prodromus in 1836, and in about 1842 as *Centauridium*, by Torrey and Gray in the Flora of North America.

Xanthisma is closely allied to the great American genus *Haplopappus,* which extends from California to Patagonia. The figure in "Marcy's Expedition" is a very bad one, and represents the pappus as two distinctly double, the corolla of the ray as acute, which is owing to the margins being involute in a dry state; it omits the hairs on the achenes, and the minute serratures of the foliage. This plant flowered in Kew in November last.

Descr. A slender sparingly branched annual, one to three feet high, with slender twiggy branchlets that are smooth or slightly scaberulous. *Leaves* scattered, three-quarters to one and a half inch long, sessile, linear or linear-oblong, or slightly dilated upwards, acute, with a deciduous awn at the tip, margin cartilaginous fringed with minute cartilaginous teeth, and sometimes rather coarsely serrate; midrib obscure, nerves obsolete. *Heads* one to one and a half inch in diameter, solitary, terminal, sessile or peduncled, golden yellow. *Involucre* hemispherical, bracts in several series, green, coriaceous, the outer lanceolate, the inner spathulate, with broad pale serrate margins and awned tips. *Receptacle* flat, pitted, paleaceous. *Ray-flowers* numerous, female; ligule oblong-lanceolate, three-toothed; disk flowers tubular, hermaphrodite. *Style arms* linear-subulate, hairy. *Achenes* small, turgid, obovoid, ribbed, pubescent. *Pappus* of six to ten unequal rigid flattened shining rufous bristles.—*J. D. H.*

Fig. 1, Ray-flower and palea of receptacle; 2, disk flower and pappus bristle:—*all magnified.*

6276.



W Fitch del et Lith

Vincent Brooks Day & Son

Tab. 6276.

DRIMIOPSIS Kirkii.

Native of Zanzibar.

Nat. Ord. Liliaceæ.—Tribe Scilleæ.

Genus Drimiopsis, *Lindl.* (*Baker in Journ. Linn. Soc.*, vol. xiii. p. 225).

Drimiopsis *Kirkii*, bulbo globoso tunicis membranaceis albidis truncatis, foliis 6–8 lanceolatis subpedalibus pallide viridibus maculis copiosis saturatioribus decoratis acutis ad basin vix petiolatum longe angustatis, scapo subpedali, racemo angusto 3–4-pollicari floribus numerosis supremis abortivis, pedicellis patulis brevissimis, bracteis abortivis, perianthii segmentis oblongis apice leviter cucullatis interioribus diu conniventibus, filamentis omnibus lanceolatis conformibus, stylo ovario æquilongo.

D. Kirkii, *Baker in Gard. Chron.*, 1874, part 2, p. 644.

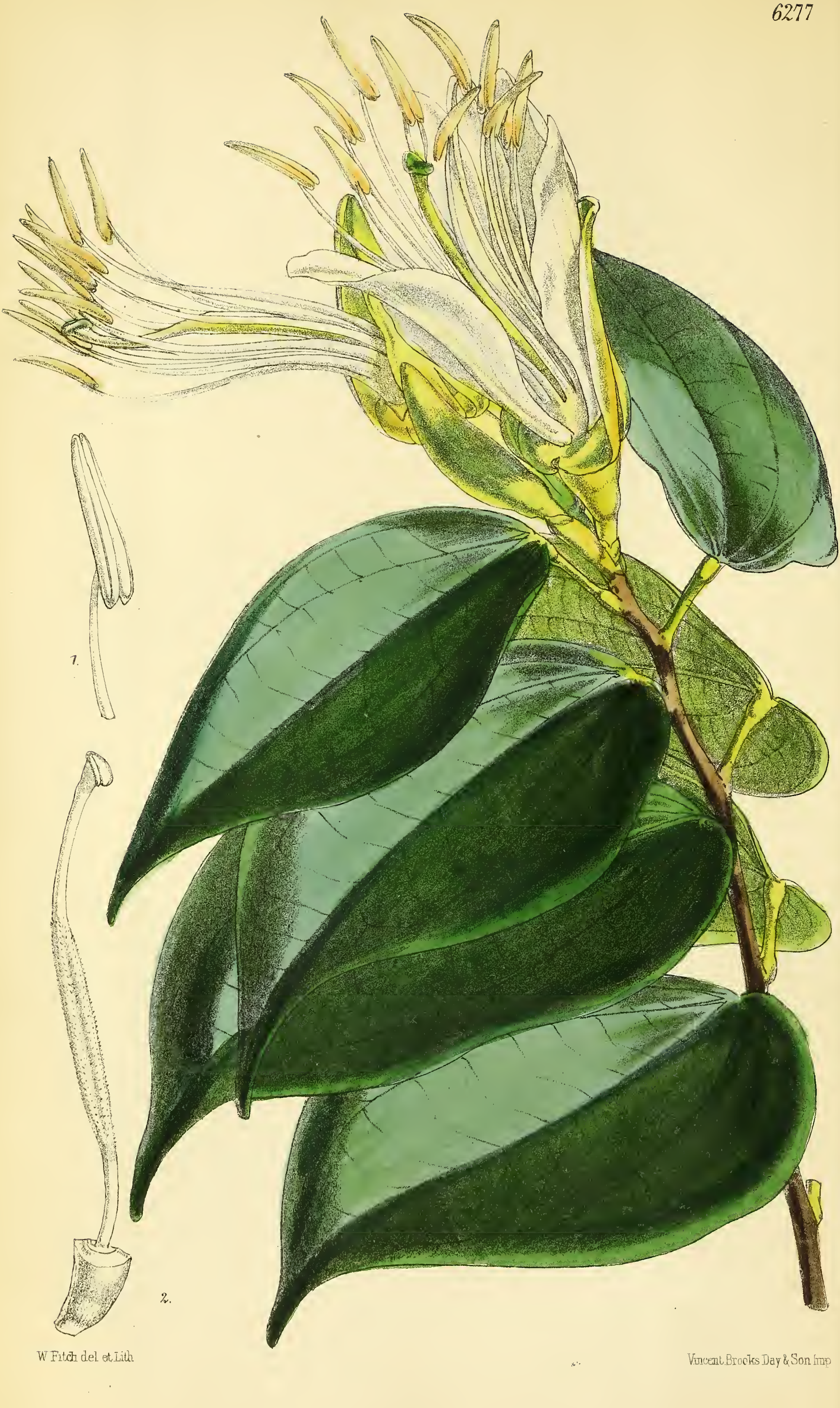
In 1871 Dr. Kirk sent to Kew from Zanzibar bulbs of two species of this curious and little-known genus. One of them proved to be *D. botryoides*, which I described in the Linnæan Proceedings from a couple of poor specimens, without any locality, in the collection of the late Judge Blackburn, of Mauritius, and the other, the present plant. All the known species of the genus resemble one another very closely in habit and flower; but there are two types of leaf, one with a distinct petiole and an oblong blade, after the fashion of a *Eucharis* or a *Griffinia*, a type of form very rare in Liliaceæ, and the other with the blade narrowed gradually from the middle to both ends and not furnished with any distinct petiole. This is the first species of the latter group that has been brought into cultivation. It flowered at Kew first in July, 1873.

Descr. Bulb globose, one and a half inch in diameter, with thin whitish truncate tunics. *Leaves* six to eight, cotemporary with the flowers, lanceolate, a foot long, one to one and a half inch broad above the middle, acute, narrowed gradually to the base, not distinctly petioled, very fleshy in texture, glabrous, pale green on the upper surface with large irregular blotches of dark green, still paler green beneath.

Scape terete, a foot or more long. *Raceme* three to four inches long, the upper flowers crowded; those of the lower half laxer, many of the uppermost abortive; pedicels very short; bracts abortive. *Perianth* white, a quarter of an inch long; segments oblong, obtuse, slightly cucullate at the tip, the three inner ones permanently connivent. *Filaments* shorter than the perianth, lanceolate, uniform. *Ovary* globose; style as long as the ovary; stigma capitate.—*J. G. B.*

Fig. 1, Flower; 2, stamens; 3, pistil; 4, tranverse section of ovary:—*all magnified.*

6277



W Fitch del. et Lith.
Vincent Brooks Day & Son Imp

TAB. 6277.

BAUHINIA PETIOLATA.

Native of New Granada.

Nat. Ord. LEGUMINOSÆ.—Tribe BAUHINIEÆ.

Genus BAUHINIA, *Linn.* (*Benth. et Hook. f. Gen. Plant.* vol. i. p. 575.)

BAUHINIA (*Pauletia*) petiolata; glaberrima, foliis simplicibus petiolatis distichis ovatis obtuse caudato-acuminatis basi rotundatis integerrimis 5-nerviis luride viridibus, petiolo basi et apice tumido, floribus paucis in racemum brevem terminalem dispositis brevissime crasse pedicellatis, calycis tubo brevi campanulato, limbo spathaceo obtuso basi fisso corolla breviore, petalis anguste obovato-spathulatis albis, staminibus exsertis, filamentis decurvis elongatis basi monadelphis, antheris anguste hastatis flavis supremo minore casso ovario gracile stipitato libero, stylo valido, stigmate 2-lobo.

B. petiolata, *Triana, MSS.*

AMARIA petiolata, *Mutis Sem. Nuev. Granad.* 1810, p. 25, *ex DC. Prod.* vol. ii. p. ~~25.~~ 519

CASPARIA speciosa, *Hort. Lind.*

The genus *Amaria* was established by the Spanish botanist Mutis, and adopted by De Candolle, for this and an allied very interesting plant; unfortunately, the only character by which it could have been separated from Mr. Cavanilles' older genus *Pauletia* is that attributed to it of having the stalk of the ovary adnate to the calyx, which however, as shown in our plate, is not the case; and it hence, together with *Pauletia* itself, falls into the huge genus *Bauhinia.* The anthers are represented in our drawing (which was made in 1862) as uniform and also perfect, but in the dried specimen, preserved at the same time, the upper filament is shorter and its anther is imperfect; and the plant being now lost to the Gardens, I cannot determine whether the character is a constant one. The only other species of the section figured in this work is *B. forficata* (tab. 3741), which has two-lobed leaves and axillary flowers.

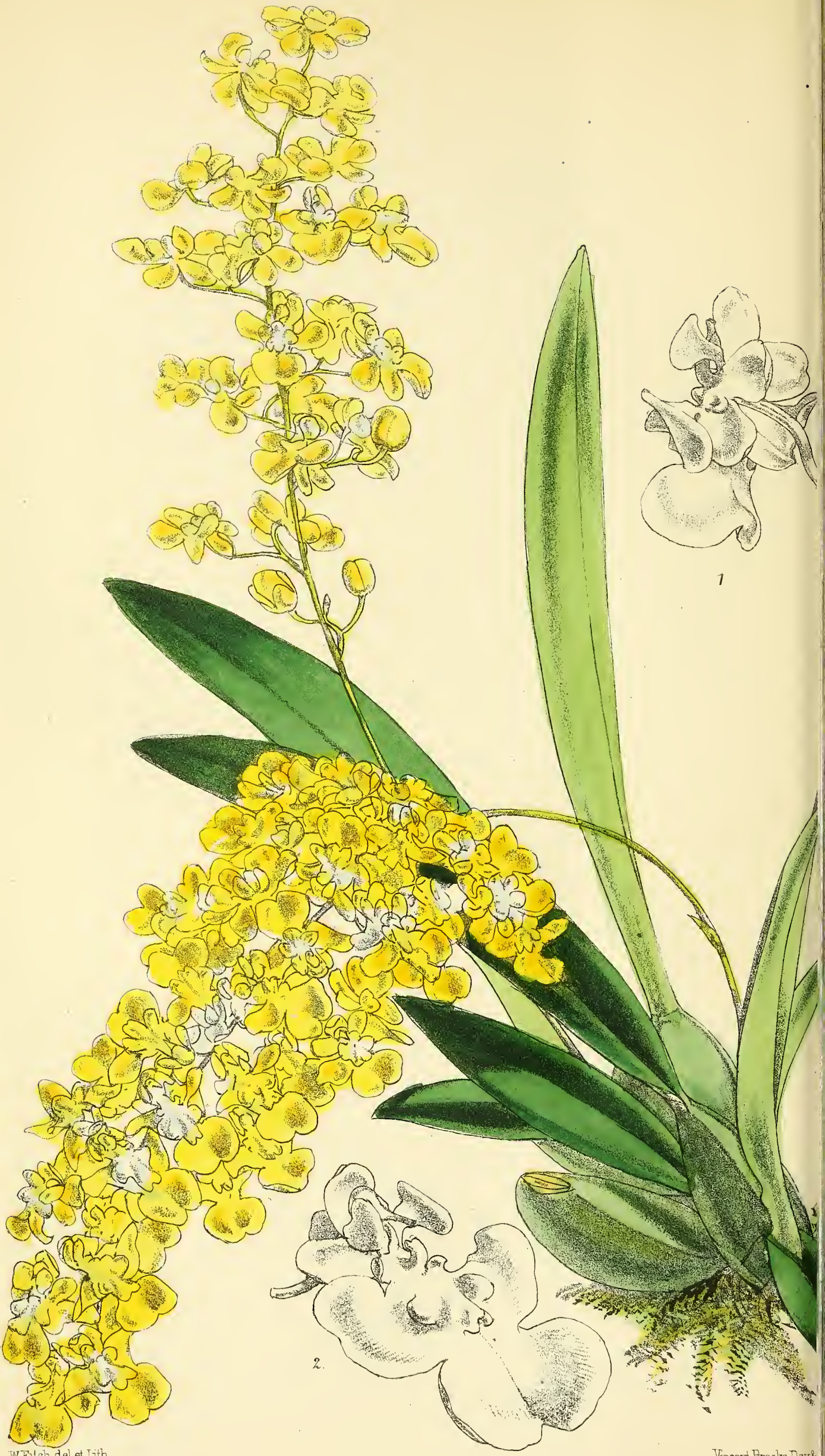
B. petiolata was introduced by Linden from New Granada, and by him was sent to Kew, where it flowered in October of the above-named year. I am indebted to the excellent New

Granadan botanist M. Triana for identifying it with the plant of Mutis.

Descr. A glabrous shrub, with slender terete woody pendulous or inclined branches. *Leaves* alternate, distichous, spreading, four to five inches long, ovate or almost deltoid, obtusely caudate-acuminate, quite entire, base rounded, with five slender nerves from the top of the petiole, reticulately veined, coriaceous, even, dark green; petiole very variable in length, one-half to one and a half inch long, slender, swollen at the apex and base. *Flowers* white, three inches long, few together in a very short terminal subsessile raceme; rachis thick; pedicels very short, placed close together; bracteoles minute, triangular. *Calyx tube* campanulate, half an inch long; limb spathaceous and splitting at the base into five segments which cohere at the obtuse apex, cylindric and curved in bud. *Petals* white with a faint rosy tinge, narrowly obovate-spathulate. *Stamens* nearly three inches long, with white declinate then ascending filaments that are shortly monadelphous; anthers narrowly hastate, nearly half an inch long, yellow. *Ovary* narrowly linear, with a slender free stipes, nearly half an inch long, gradually contracted into a stout style with a two-lobed thickened stigma.—*J. D. H.*

Fig. 1, Tip of filament and anther; 2, pedicel and ovary:—both *enlarged.*

62



W Fitch del et Lith

Vincent Brooks Day &

TAB. 6278.

ONCIDIUM CHEIROPHORUM.

Native of New Grenada.

Nat. Ord. ORCHIDEÆ.—Tribe VANDEÆ.

Genus ONCIDIUM, *Swartz.* (*Lindl. Fol. Orchid.*, Oncidium.)

ONCIDIUM (Paucituberculata) *cheirophorum;* pseudobulbis parvis ellipsoideis v. orbiculatis compressis ancipitibus, foliis lineari-lanceolatis subacutis carinatis; scapo filiformi foliis longiore, panicula angusta multi-densiflora subcylindracea nutante, floribus inter minoribus flavis nitentibus, sepalis petalisque parvis subsimilibus obovato-rotundatis concavis, sepalo supremo galeato, labello ampliato 3-lobo lobis lateralibus oblongis rotundatisve patenti-recurvis, intermedio orbiculato concavo emarginato, disco callo tricruri ornato, columna brevi alis magnis dolabriformibus basi in processum cornutum producta, rostello elongato.

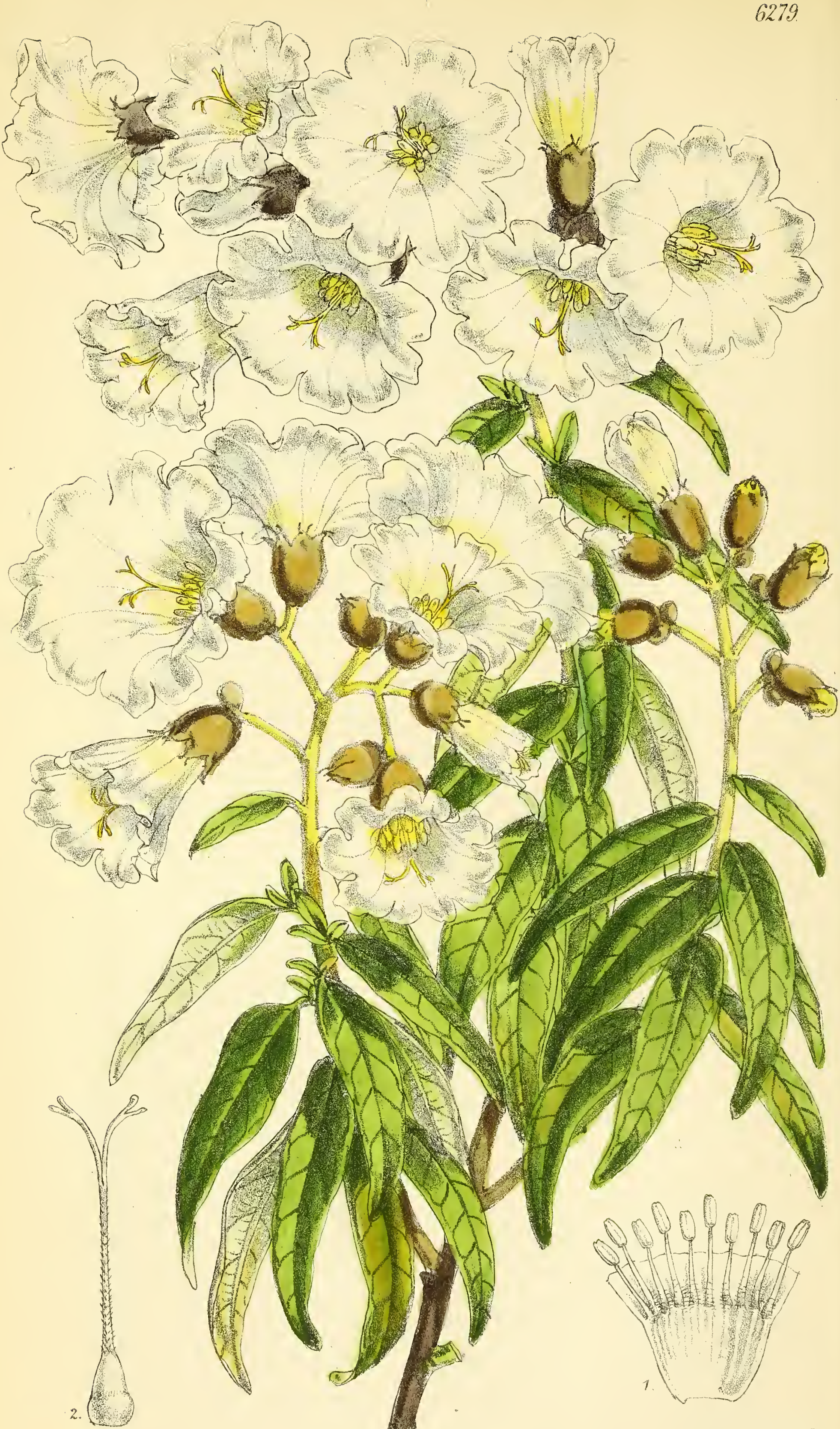
O. cheirophorum, *Reichb. f. in Bot. Zeit.* vol. x. 1852, p. 695, 697; *Xen. Orchid.* vol. 1, p. 191, t. 69; *Walp. Ann.* vi. 776, *et in Gard. Chron.* 1871, p. 168; *Lindl. Fol. Orchid., Oncidium,* p. 124.

A charming, very sweet-scented little species, allied to the *O. stramineum* (Tab. 6254), but a far more elegant plant, with narrow leaves, an almost filiform scape, and brighter-coloured sparkling flowers. It was discovered by Warscewicz on the volcano of Chiriqui, at an elevation of 8000 feet, in New Grenada (near Panama); flowering in December, with the thermometer some few degrees above freezing point. It has been long cultivated on the continent, and first of all at Hamburgh, a town once so famous for the Orchid collections of its high office-bearer, as of Senator Janisch, and Consul Schiller; and was soon thereafter introduced into England. It was flowered at Kew in December, 1872, from plants reared by Messrs. Veitch the previous year.

DESCR. A small species. *Pseudobulbs* about an inch long, orbicular or ellipsoid, much flattened, with sharp margins, smooth, finely wrinkled in age. *Leaves* three to six inches long, linear-lanceolate, acute, green, hardly narrowed into a petiole. *Scape* longer or shorter than the leaves, very slender, bearing an elongate, drooping, rather dense-flowered, contracted, subcylindric, very many-flowered panicle; branches short, slender, and branchlets horizontal and flexuous; bracts small, spreading, triangular-ovate, erect or recurved. *Flowers* one half inch diameter, bright yellow, with greenish sepals, not spotted. *Sepals* and *Petals* subequal, small, spreading and reflexed, orbicular-obovate, concave, the dorsal sepal galeate. *Lip* very much larger than the petals, three-lobed; lobes (and crests) variable, lateral orbicular or oblong, more or less recurved or auriculate towards the column; mid-lobes orbicular or broader than long, concave, emarginate; callus of the disk consisting of two lateral bosses and a central ridge which notched and truncate in front. *Column* stout, with two large spreading hatchet-shaped wings, a beaked rostellum, and a curved basal projecting horn.—*J. D. H.*

Fig. 1, Side, and 2, front view of flower:—*both enlarged.*

6279.



W Fitch del et Lith

Vincent Brooks Day & Son Imp.

TAB. 6279.

CORDIA DECANDRA.

Native of Chili.

Nat. Ord. BORAGINEÆ.—Tribe CORDIEÆ.

Genus CORDIA, *Plum.* (*Benth. et Hook. f. Gen. Pl.* vol. ii. p. 838.)

CORDIA (*sebestenoides*) *decandra*, fruticosa, v. subarborea, pilis rigidulis aspera, ramulis teretibus, foliis sessilibus lineari-lanceolatis obtusis subacutisve marginibus revolutis supra scabridis et venis immersis rugosis subtus griseis, panicula terminali corymbosa laxa effusa foliosa, pedicellis gracilibus, calyce campanulato obtuse 3–5-lobo et 10-dentato pilis brunneis hispido, corollæ tubo brevi infundibulari, limbo explanato albo breviter 10-lobo, antheris 10 vix exsertis, fructu ovoideo ligneo lævissimo apiculato calyce fere incluso 4-valvatim fisso.

C. decandra, *Hook. et Arn. Bot. Beech. Voy.* vol. i. p. 38. t. 10.; *DC. Prod.* vol. ix. p. 478; *C. Gay, Flor. Chil.* vol. ii. p. 455.

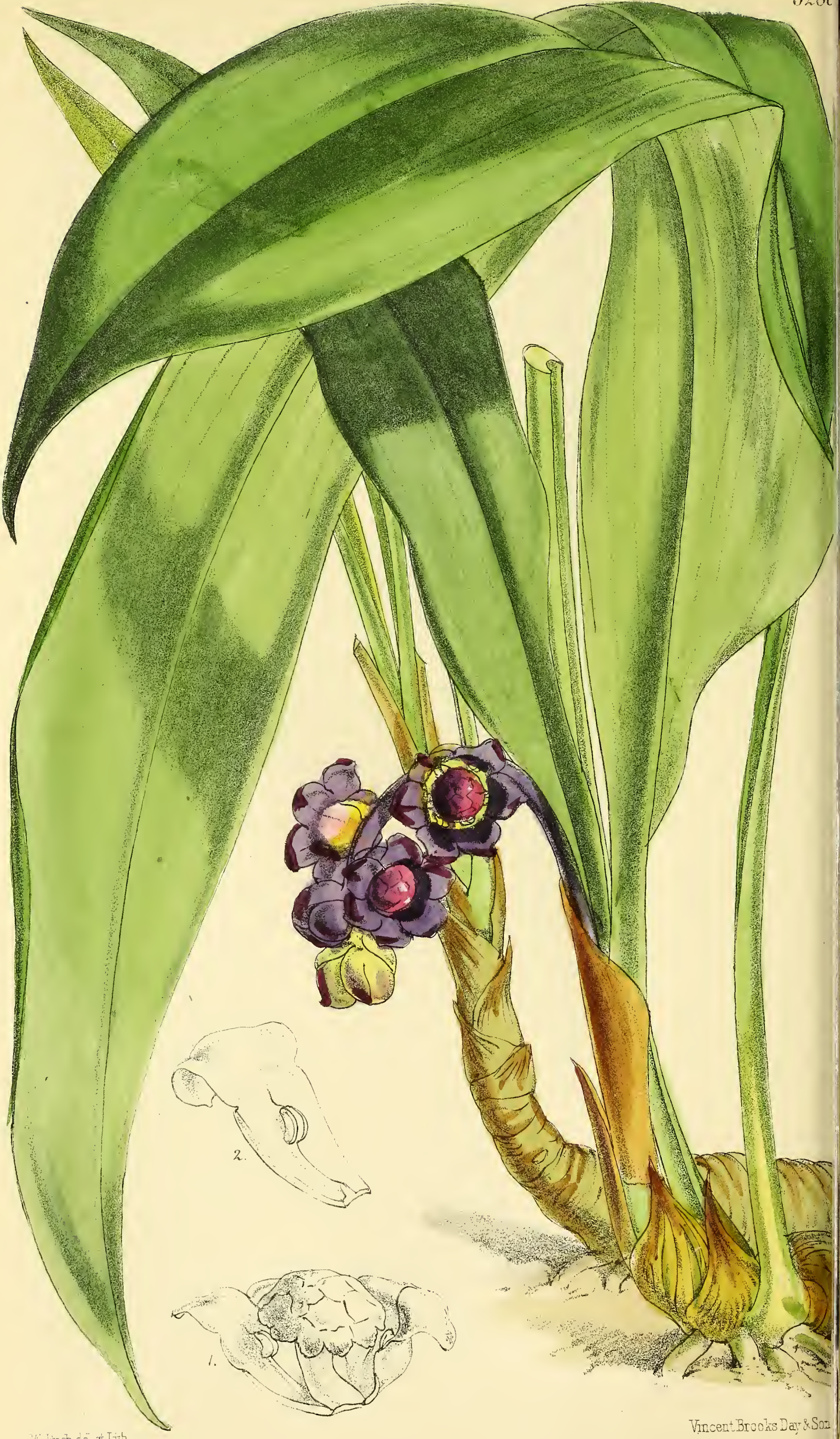
A beautiful shrub, native of Central and Northern Chili, where it is well known for the excessive hardness of its wood, which is much used for charcoal, whence the local name of Carbon for the species is derived. The first information we possess of it is from specimens gathered in 1825 by Macrae, a collector in the employ of the Royal Horticultural Gardens, who visited Chili on his way to the N.W. coast of America; since which period it has been met with by many botanists and voyagers. It is easy of cultivation and well worth a place in a warm greenhouse on account of the pure white of the blossoms that are copiously produced in spring.

The following account of the wood is given in the Appendix to Mrs. Graham's (afterwards Lady Calcott's) 'Chili,' "Carbon grows in the districts of Guasco, Coquimbo, and Cuzcuz only. It is short and thick, and used for small articles of turnery, but it is incomparable for firewood. Two logs that might not each be more than a yard long and one-third thick, suffice to keep a stew boiling night and day, besides other kettles, enough for eight or ten people. Mr. Cruckshanks, from whom there are specimens in the Hookerian Herbarium, states that the wood is extensively employed for fuel in smelting copper (as the dead and withered stems of the cactus are for refining that metal) in the mining districts of Coquimbo, so that in many places the district is almost cleared of these plants.

Cordia decandra was introduced by Messrs. Veitch, who sent the specimen here figured in May, 1875.

Descr. A shrub, rough to the touch from the copious short rigid hairs. *Branches* scabrid, terete, leafy. *Leaves* alternate, sessile, erect, spreading or deflexed, linear, lanceolate, obtuse or subacute, scabrid above and rugose with small veins, grey and pubescent beneath, with glabrous varied veins, margins recurved very strongly. *Panicles* lax, terminal, corymbose, many-flowered, drooping; peduncles and pedicels slender, tomentose. *Flowers* solitary or fascicled, *Calyx* campanulate, many-nerved, hispid with brown hairs, variously irregularly lobed and with 10-marginal subulate teeth. *Corolla* one to one-and-a-half inch in diameter, pure white; tube funnel-shaped; limb expanded, obtusely 10-lobed at the margin. *Stamens* 10, almost included, filaments slender, ciliate; anthers small, yellow. *Ovary* conical; style slender, its divisions slender forked at the tip. *Fruit* like a hazel-nut, half to two-thirds inch long, almost enclosed in the calyx, hard, ovoid, apiculate, smooth, without any trace of a fleshy covering, four-celled, with four woody valves that partially separate from the woody axis and allow the seeds to escape.—*J. D. H.*

Fig. 1, Tube of corolla and stamen; 2, pistil:—*both enlarged.*



W Fitch del. et Lith

Vincent Brooks Day & Son

TAB. 6280.

TUPISTRA MACROSTIGMA.

Native of the Khasia Mountains.

Nat. Ord. LILIACEÆ.—Tribe ASPIDISTREÆ.

Genus TUPISTRA, *Gawl.* (*Baker in Journ. Linn. Soc.* vol. xiv. p. 580).

TUPISTRA *macrostigma*; rhizomate crasso ramoso, foliis binis lanceolatis longe petiolatis chartaceis viridibus, exterioribus rudimentariis in fibras dissolutis, pedunculo brevi erecto, spica laxa cernua, bracteis deltoideis, perianthii atropurpurei segmentis deltoideis tubo campanulato æquilongis, stigmate magno peltato convexo margine 6-lobato tubum corolla et antheras occultante.

T. squalida, *Baker in Journ. Linn. Soc. loc. cit. partim*, p. 130, t. 192, *non Gawl.*

MACROSTIGMA tupistroides, *Kunth, Enum.* vol. v. p. 319; *Regel, Gartenflora*, 1857.

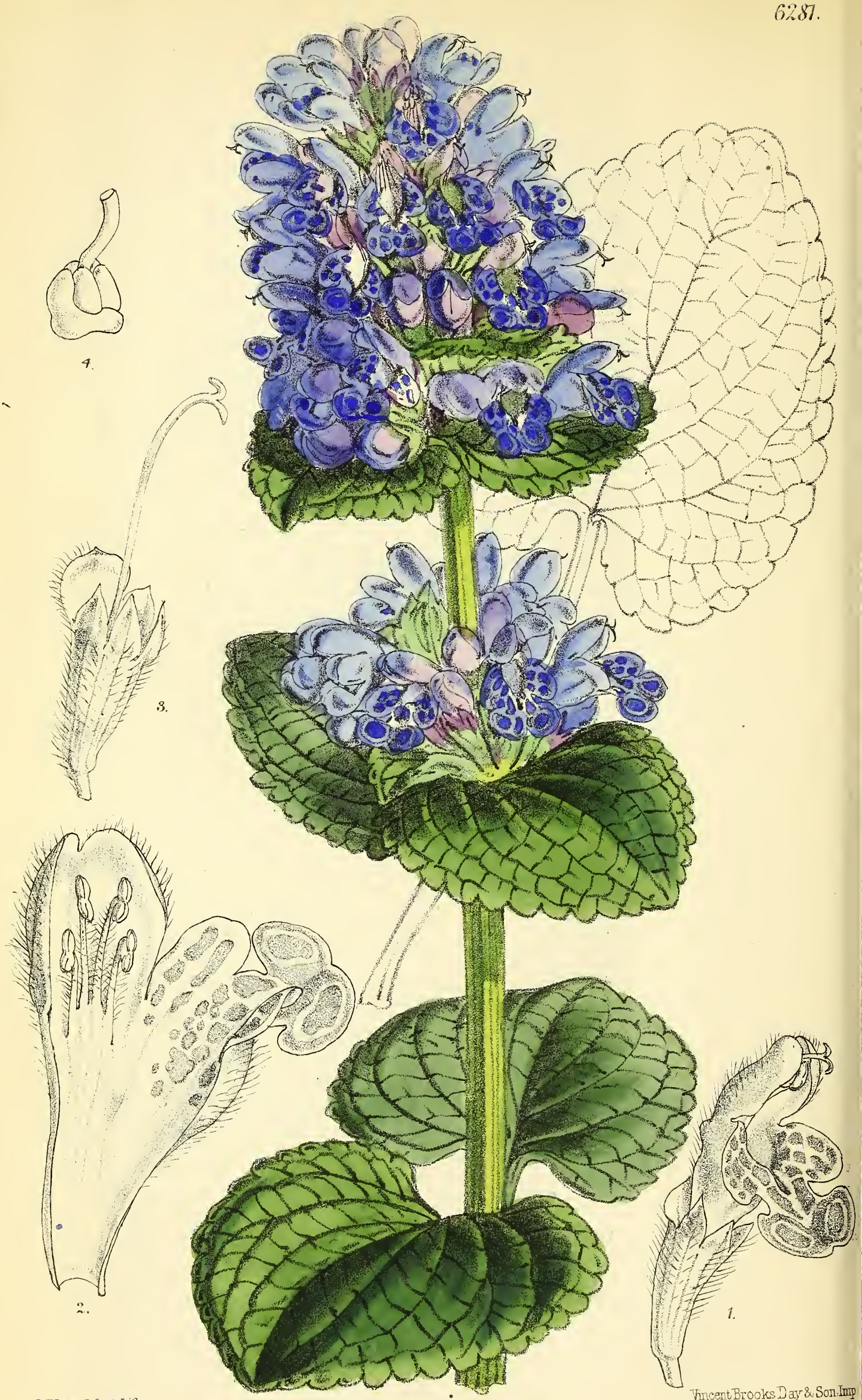
In my monograph of the *Aspidistreæ* just cited, judging from dried specimens alone, I joined all the species of *Tupistra* then clearly known into one. Now, upon study of living specimens of this, I recognise that it is really distinct specifically from *T. squalida* of Gawler, which inhabits the same country, and differs from the plant now in question by its more robust habit, broader leaves, denser spikes, and materially smaller stigma. For making the plants two different genera, as Kunth has done, I certainly cannot see any good ground.

The native country of the present plant has never been stated. We have a considerable suite of specimens in the Kew herbarium, gathered in the mountains of Khasia, at an elevation of between two thousand and four thousand feet, by Griffith and Hooker and Thomson. There is a fine drawing at Kew yet unpublished, by Cathcart, of the true *T. squalida*, from Sikkim. The present drawing of *T. macrostigma* was made from a plant which flowered in Kew Gardens in December, 1876, which was sent to the collection by Dr. Regel in 1872.

DESCR. *Rhizome* like that of a Ginger, short, creeping, thick, much-branched; floriferous tufts consisting usually of two produced leaves, and the flower-stem, with several small sheath-leaves outside which split up into fibres. *Petiole* dilated at the base, firm, erect, half a foot or more long, channelled down the face; blade lanceolate, acute, chartaceous, above a foot long, narrowed from above the middle to the point and petiole, bright green on both sides, with the copious fine regular veins rather oblique as regards the midrib. *Peduncle* dark purple, erect, two or three inches long. *Spike* drooping, lax, about as long as the peduncle; bracts large, deltoid, persistent. *Perianth* campanulate, dark purple, half an inch in diameter, the reflexing deltoid segments as long as the campanulate tube. *Anthers* sessile at the throat of the tube. *Ovary* globose, minute; style fleshy, cylindrical, reaching up to the top of the tube; stigma, large, peltate, fleshy, convex, distinctly six-lobed round the border, filling up the whole mouth of the tube and concealing the stamens.—*J. D. Baker.*

Fig. 1, Flower cut open to show the stigma; 2, a sixth part of the perianth, showing the shape and insertion of the anther:— *both magnified.*

6281.



W Fitch del et Lith.

Vincent Brooks Day & Son Imp

TAB. 6281.

DRACOCEPHALUM SPECIOSUM.

Native of the Himalaya Mountains.

Nat. Ord. LABIATÆ.—Tribe NEPETEÆ.

Genus DRACOCEPHALUM, *Linn.* (*Benth. et Hook. fil. Gen. Plant.* vol. ii. p. 1699)

DRACOCEPHALUM (*Boguldia*) *speciosum*; ascendens v. erectum pubescenti-tomentosum v. subvillosum, foliis rugosis crenatis utrinque viridibus radicalibus longe-petiolatis late cordiformibus caulinis paucis sessilibus v. breviter petiolatis subtus laxe pilosis, floralibus orbiculatis subbracteæformibus, verticillastris supremis in spicam latam oblongam obtusam dense congestis, bracteis inciso-crenatis calyce multo brevioribus, calyce infundibulari-campanulato curvo dentibus 4 triangulari-ovatis acutis quarto orbiculato dilatato, corolla purpurea albo maculata.

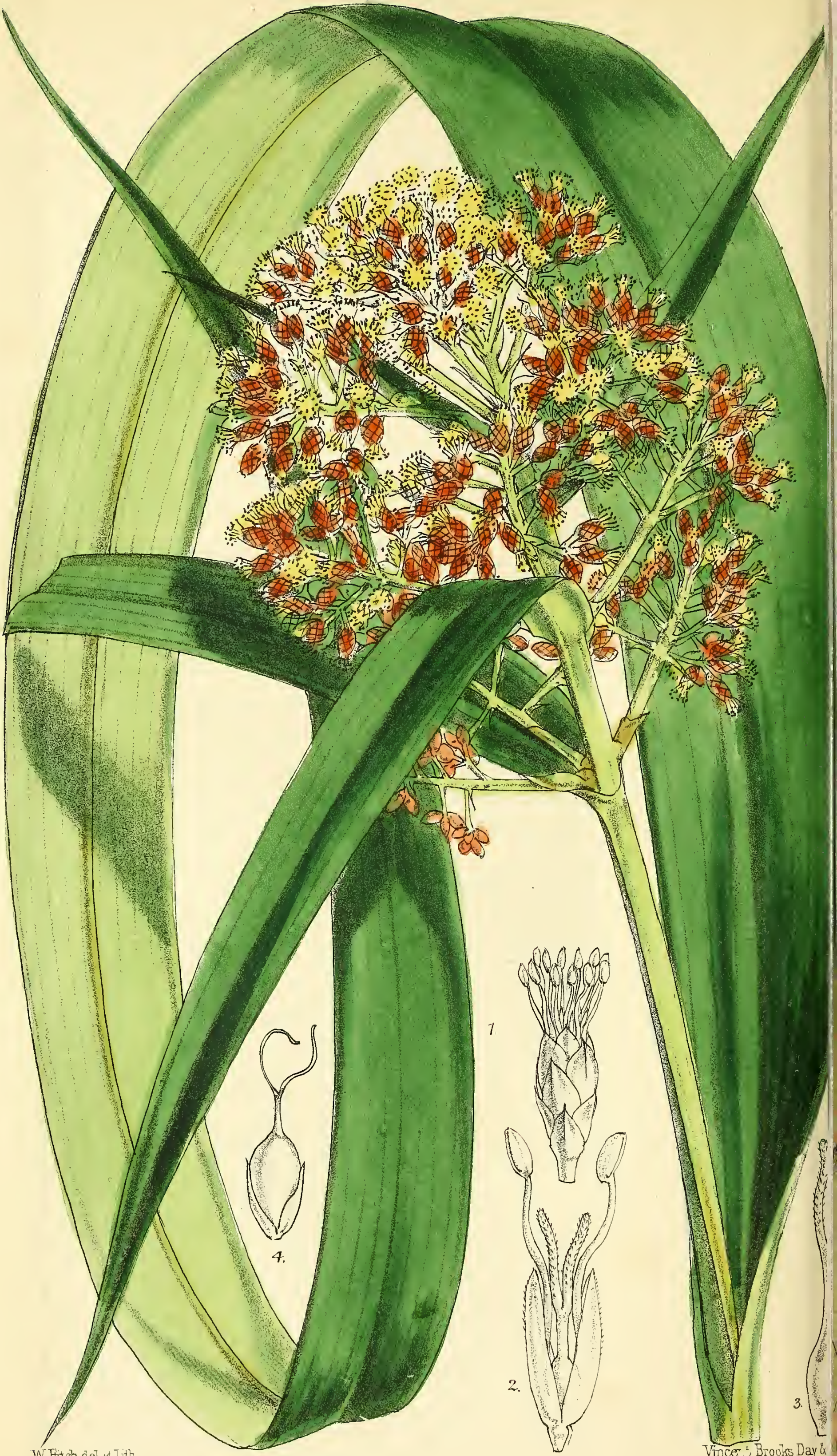
D. speciosum, *Benth in Wall. Pl. As. Rar.* vol. ii. p. 65, *non Sweet*; *Gen. et Sp. Lab.* p. 494; *Wall. Cat. no.* 2128.

Discovered by Wallich's collectors in Nepal, and afterwards almost simultaneously found by Madden in Garwhal, by Strachey and Winterbottom in Kumaon, and by myself in the Sikkim Himalaya, all at elevations ranging from 12000 to 15000 feet above the sea, where it forms a robust handsome plant in grassy places. The genus is a very considerable one, containing many species well worth cultivation, especially on a rock-work. It extends from Europe to the Altai and Himalaya, where about 30 species are known. Of these only one has been previously figured in this work, the *D. peregrinum*, t. 1084, the *D. sibiricum*, t. 2185, being a true *Nepete*. The *D. speciosum* of Sweet's Flower Garden, vol. i. t. 93, is *Physostegia virginiana* (see Benth. in DC. Prod. vol. xii. p. 404).

The specimen here figured was received at Kew from the Rev. Mr. Harper Crewe, who raised it from seeds sent from Sikkim by Mr. Elwes. It flowered in June last.

DESC. More or less clothed with spreading pubescence or almost woolly. *Root* of very stout fleshy fibres. *Stem*, erect, or ascending at the base, very stout, simple, obtusely 4-angled. *Leaves* dark-green, rugose, radical on petioles sometimes a foot long; blade cordiform, deeply lobed at the base, coarsely crenate, rugose; cauline in few pairs, sessile or shortly petioled, more finely crenate, orbicular or cordiform, uppermost bracteiform. *Upper whorls* densely crowded into an oblong almost woolly head 1–4 inches long; bracts shorter than the calyx, incised; pedicels very short. *Calyx* ½ inch long, between bell-shaped and funnel-shaped, curved, with 4 short triangular-ovate acute teeth, and one broadly dilated orbicular one. *Corolla* purple, spotted with white and darker purple, tube not much exceeding the calyx, dilated at the throat; lips short; upper compressed hairy, 2-lobed; lower with 2 rounded lateral lobes, and a reniform mid-lobe that is attached by a broad claw. *Stamens* short, filaments ciliate; anther-cells divaricate. *Disk* fleshy, produced behind. *J. D. H.*

Fig. 1, Flower; 2, corolla laid open; 3, calyx and style; 4, disk and ovary: —*all enlarged.*



W. Fitch del et Lith

Vincent Brooks Day &

Tab. 6282.

HYPOLYTRUM LATIFOLIUM.

Native of Ceylon and the Malay Archipelago.

Nat. Ord. Cyperaceæ.—Tribe Hypolytreæ.

Genus Hypolytrum, *Rich.* (*Endl. Gen. Plant*, p. 116).

Hypolytrum *latifolium;* culmis robustis 2–4 pedalibus lævibus trigonis foliosis, foliis culmum longe excedentibus late linearibus $\frac{3}{4}$–1 poll. latis plicatis 3-nerviis striatis rigidulis marginibus et interdum nervis subtus serrulato-scaberulis, corymbis terminalibus foliaceo-bracteatis, ramis robustis erecto-patentibus, ramulis divaricatis, spiculis floriferis cylindraceo oblongis pedicellis paullo longioribus, fructiferis squarrosis, squamis obovatis obtusis apiculatis obscure 3-nerviis, glumis 2 demum liberis carinatis, carina ciliolata, floribus diandris, stigmatibus 2, fructu squamam vix superante ellipsoideo-ruguloso apice acuto demum incrassato obtuso.

H. latifolium, *Rich. in Pers. Synops.* vol. i. p. 70; *Kunth, Enum.* vol. ii. p. 271; *Benth. Flor. Hongk.* p. 389; *Thwaites, Enum. Pl. Ceylon*, p. 346; *Kurz in Journ. As. Soc. Beng.* vol. xxxviii (1869) pt. 2, p. 72.

H. giganteum, *Wall. Cat.* No. 3404; *Nees in Wight's Contrib.* p. 93, *et in Linnæa*, vol. ix. p. 288.

H. diandrum, *Dietr. Sp.* vol. ii. p. 365.

Albikia scirpoides, *Presl, Rel. Hænk*, vol. 1, p. 185, t. 35.

Schœnus nemorum, *Vahl, Symb.* iii. p. 8; *Enum*, vol. ii. p. 227.

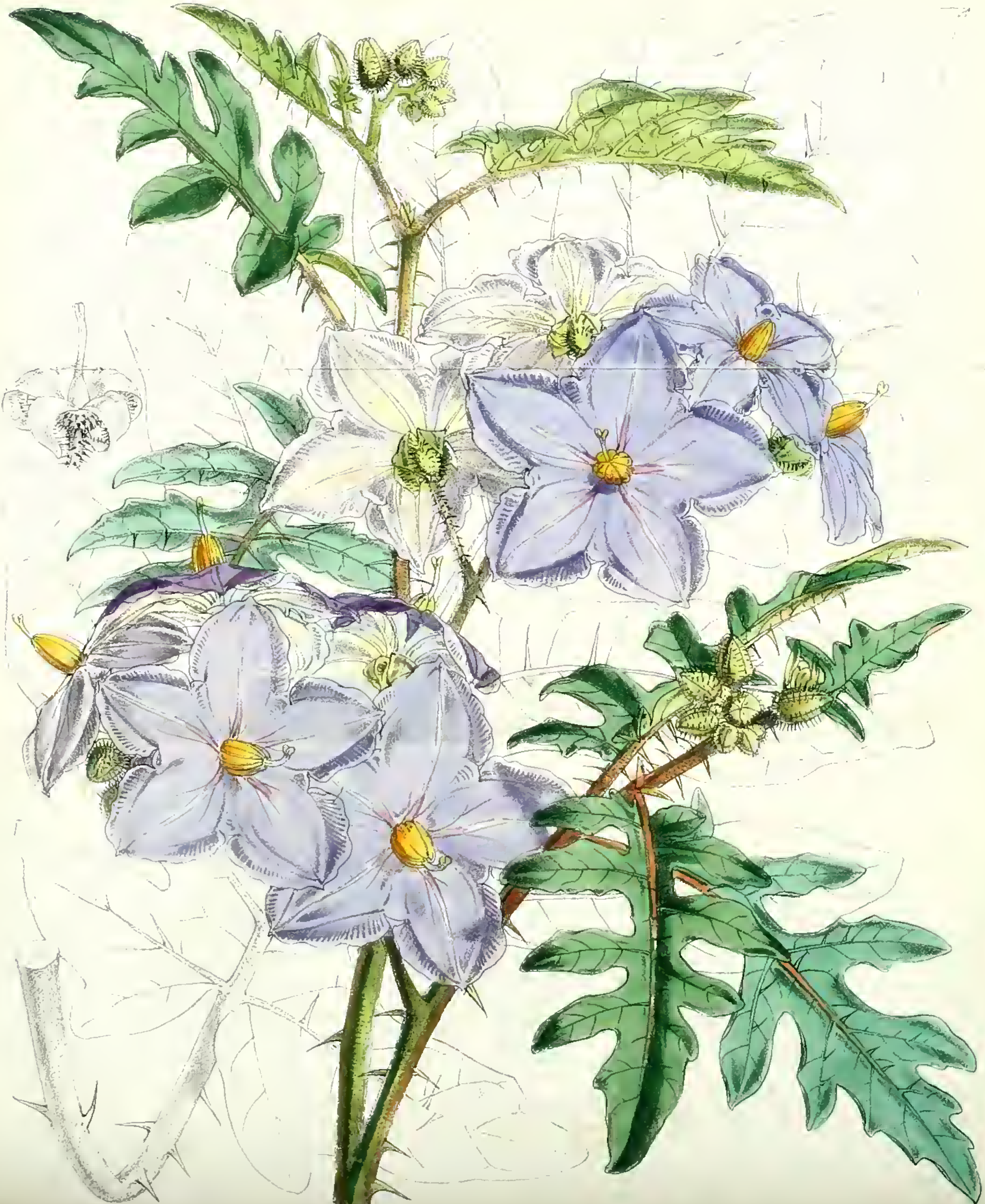
Tuga diandre, *Roxb. Fl. Ind.*, vol. i. p. 184.

It is very rarely that a Cyperaceous plant has found a place in the Botanical Magazine. Now, however, that elegance of form is beginning to be appreciated in cultivation, both Gramineæ and Cyperaceæ will claim a consideration which has hitherto been but grudgingly awarded to them. The plant here figured was sent to Kew from Ceylon by Dr. Thwaites, an excellent judge of what is horticulturally an acquisition, as a very ornamental one, and well worthy of cultivation in a tropical house. And this it has proved from its graceful bright green foliage, its rich brown inflorescence, and its permanent freshness. The genus *Hypolytrum* is a thoroughly tropical one, found in all three Continents, and the species have wide ranges; the present extends from Hindostan and Ceylon to China and the Fiji Islands, and has been identified with an African species. It is common in mountain woods of Ceylon, and in the Malay Peninsula, but has not been found in northern India. It was raised from seeds sent by Dr. Thwaites to Kew, and flowers at various seasons.

DESCR. *Culms*, two to four feet high, stout, trigonous with obtuse smooth angles. *Leaves* much longer than the culm, often an inch broad, three-nerved, and closely striated, plaited, rather rigid; margins, and often the nerves beneath, minutely serrulate. *Inflorescence* a depressed corymbose cyme, often four inches long, and broad, the lower branches with large leafy bracts, the upper with smaller, more rigid ones; main-branches trigonous, stout, erecto-patent; branchlets short, rigid, spreading horizontally. *Spikelets* one quarter of an inch long, cylindric-oblong, longer than their pedicels, of eight to twelve closely imbricate obovate, obtuse, apiculate, round-backed, broad-keeled, brown opaque scales, that spread in fruit, and are very persistent. *Glumes* two, opposite, included, much shorter than the scales, at first connate, easily separated, keel ciliolate. *Stamens* two, exserted; anthers shortly oblong. *Style* distinct: stigmas two. *Fruit* ellipsoid, turgid, rough, dark brown, and opaque, at first acute, then obtuse with a thickened tip.—*J. D. H.*

Fig. 1, Spikelet; 2, glumes and flower; 3, glumes and ovary; 4, ovary removed:—*all enlarged.*

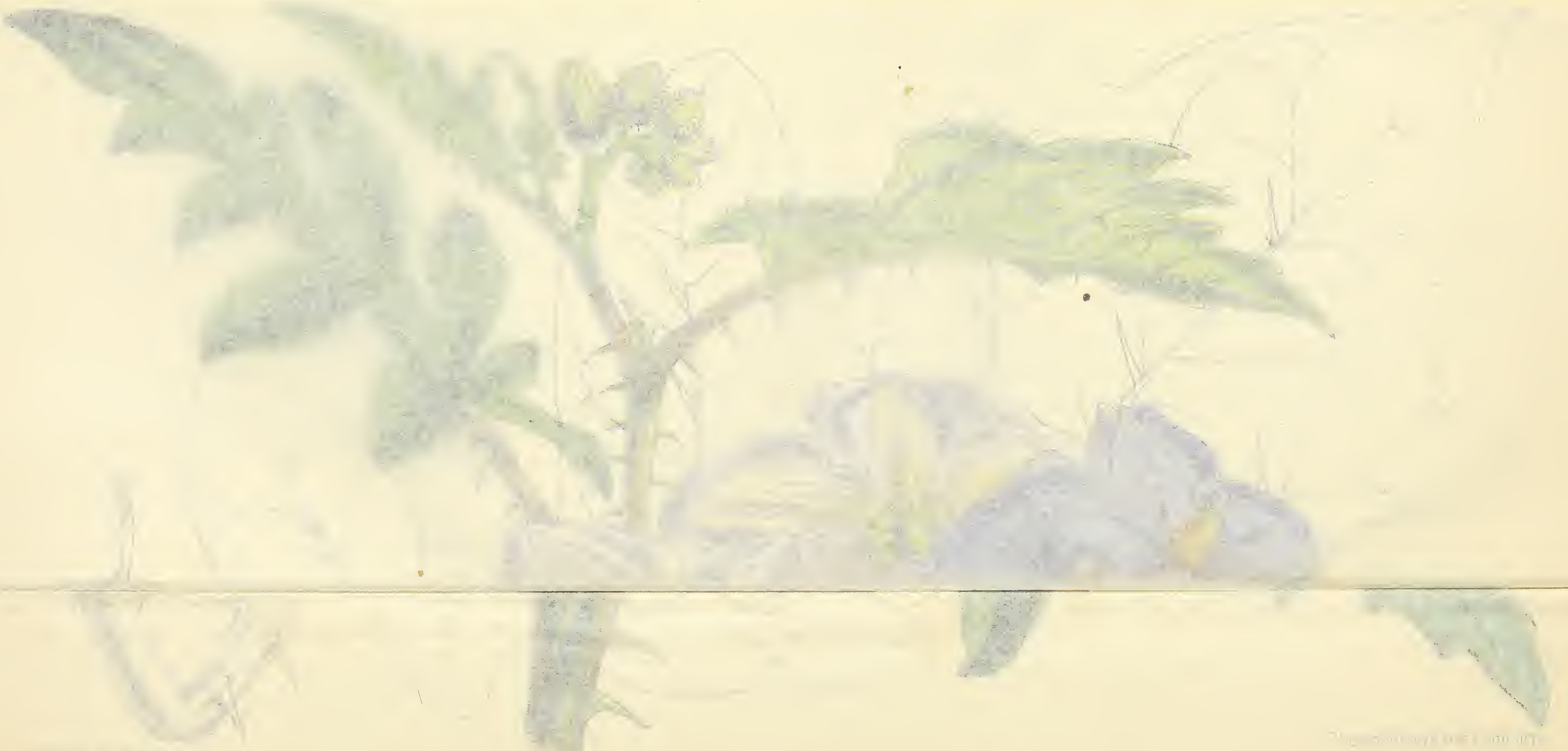
6283



W. Fitch, del. et lith.

Vincent Brooks Day & Son Imp.

6283



TAB. 6283.

SOLANUM ACANTHODES.

Native of Brazil?

Nat. Ord. SOLANACEÆ.—Tribe SOLANEÆ.

Genus SOLANUM, *Linn.* (*Benth. et Hook. f. Gen. Plant.* vol. ii. p. 888.)

SOLANUM *acanthodes*; fruticosum, furfuraceo-tomentosum et aculeatum, aculeis validis rectis v. lente curvis pallidis, foliis late obovato- v. ovato-oblongis pinnatifidis pubescentibus basi cordato 2-lobis, lobis horizontalibus obtusis sinnato-lobulatis, costa nervisque rectangularibus ochraceis utrinque aculeatis, petiolo robusto cylindraceo; cymis scorpioideis lateralibus 6-10-floris, pedicellis aculeolatis, alabastris ovoideis semipollicaribus, calycis parvi setosi tubo hemispherico lobis ovato-lanceolatis subacutis, corolla ampla 2½ poll. diam. lobis ovato-rotundatis late marginatis, antheris lineari-oblongis 2 porosis, ovario glabro.

This fine Solanum was for some years an ornament of the Palm-stove at Kew, but I am not certain of its origin; it bore the name of *S. acanthocalyx*, Klotzsch; and as that author was keeper of the Royal Herbarium of Berlin at the time, it is probable that the plant was derived from the Berlin garden. It is not however the true *S. acanthocalyx*, which is a Mozambique plant, described as having two flowered peduncles which are densely aculeate. Its nearest ally is undoubtedly the *S. macranthum*, Dunal (DC. Prod. vol. xiii. pars 2, p. 315), a native of the Amazons, of which there are fine specimens from Spruce in the Herbarium at Kew, which differ in the broader, shorter, more rounded sinuately-lobed leaves, in the much larger buds and calyx, which and the pedicels are not at all or very rarely aculeate, not densely shortly setose as in our plants. The *S. macranthum* of this work again (t. 4138), and of the Revue Horticole (1867, p. 132) is a very different plant, with the leaf-blade decurrent on the petiole, and is the *S. marionense*, Poit. I find no species out of the many hundred in the Kew Herbarium, nor in the descriptions of Dunal, at all agreeing in this, of which I am obliged reluctantly to make a new species. The figure was made in August, 1863.

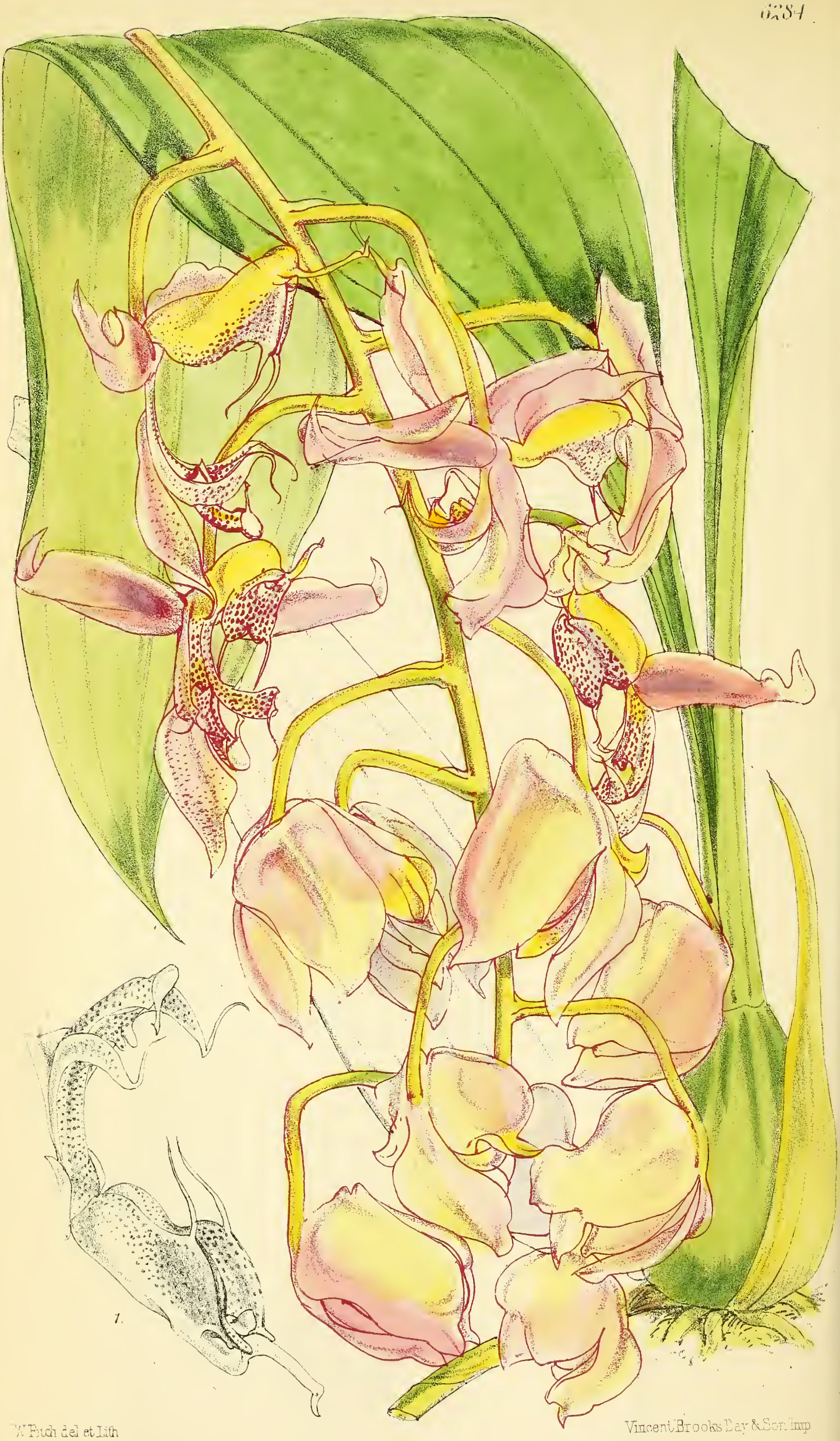
DESCR. Shrubby, clothed with a mealy tomentum, and scattered stout, pale, straight, or slightly curved prickles. *Stem*

MARCH 1ST, 1877.

and branches dark green and bright orange, the younger ones wholly orange. *Leaves* a foot long and upwards, ovate or obovate-oblong, pinnatifidly lobed to the middle or lower, deeply two-lobed at the base, dull green; lobes horizontal, sinuate, subacute; midrib and horizontal nerves orange-red; prickles scattered on the midrib and nerves of both surfaces; petiole robust, cylindric, armed with scattered stout prickles. *Cymes* lateral, scorpioid, 6–10-flowered; rachis and pedicels clothed with short prickles, reddish yellow. *Flowers* two and a half inches in diameter, pale blue-purple. *Calyx-tube* green, hemispherical, and its lobes stellately hairy, both clothed with short stiff bristles; lobes one quarter of an inch long, recurved, ovate-lanceolate, subacute, green. *Corolla* nearly flat, lobed to about the middle, the lobes rounded apiculate, margins concolorous waved. *Anthers* about one quarter the length of the corolla, narrowly linear-oblong, yellow, with two apical pores, filaments very short. *Ovary* glabrous; base of style pubescent. —*J. D. H.*

Fig. 1, Calyx and ovary:—*enlarged.*

6284.



W. Fitch del et Lith

Vincent Brooks Day & Son Imp

Tab. 6284.

GONGORA PORTENTOSA.

Native of New Grenada.

Nat. Ord. Orchideæ.—Tribe Vandeæ.

Genus Gongora, *Ruiz and Pav.* (*Endl. Gen. Pl.* vol. i. p. 199.)

Gongora *portentosa;* pseudobulbis conico-ovoideis, foliis elliptico-lanceolatis, pedunculo elongato, racemo laxo multifloro pendulo, floribus longo-pedicellatis pallide carneis petalis columna labellique disco violaceo-punctatis, sepalo dorsali unguiculato lamina ovato-lanceolata acuminata, lateralibus late-ovato-oblongis acutis basi lata oblique truncata, petalis linearibus falcatis caudato-acuminatis, labello crasse carnoso compresso medio incrassato et antice truncato superne tentaculis 2 retrorsis instructo apice in caudam rectam v. apice decurvam abrupte angustato, columna gracile exalata.

G. portentosa, *Reichb. and Lind. in Gard. Chron* 1869, p. 892; *André in l'Illust. Horticol.* vol. xviii. p. 92, t. 61.

A very remarkable species of a genus already well known for the grotesque forms assumed by its flowers, and for the adaptation of these to ensuring cross-fertilization by insects. In the present genus the upturned margins of the lip, as observed by Mr. Darwin (Fertilization of Orchids, p. 276), no doubt act as lateral guides to lead insects up to stand beneath the middle of the rostellum and carry the pollen.

The genus *Gongora* is rapidly being recruited with new species from tropical America, and especially the Andes. Only two are enumerated in Lindley's Genera and Species of Orchideæ; upwards of fifteen species are now known, and we have drawings of other unfigured ones. The present one is a native of Cundinamarca, in the province of Bogota, and was discovered by Mr. Wallis in 1868. It has been widely distributed by M. Linden, and the specimen here figured, flowered with Mr. Bull, of Chelsea, in April, 1874.

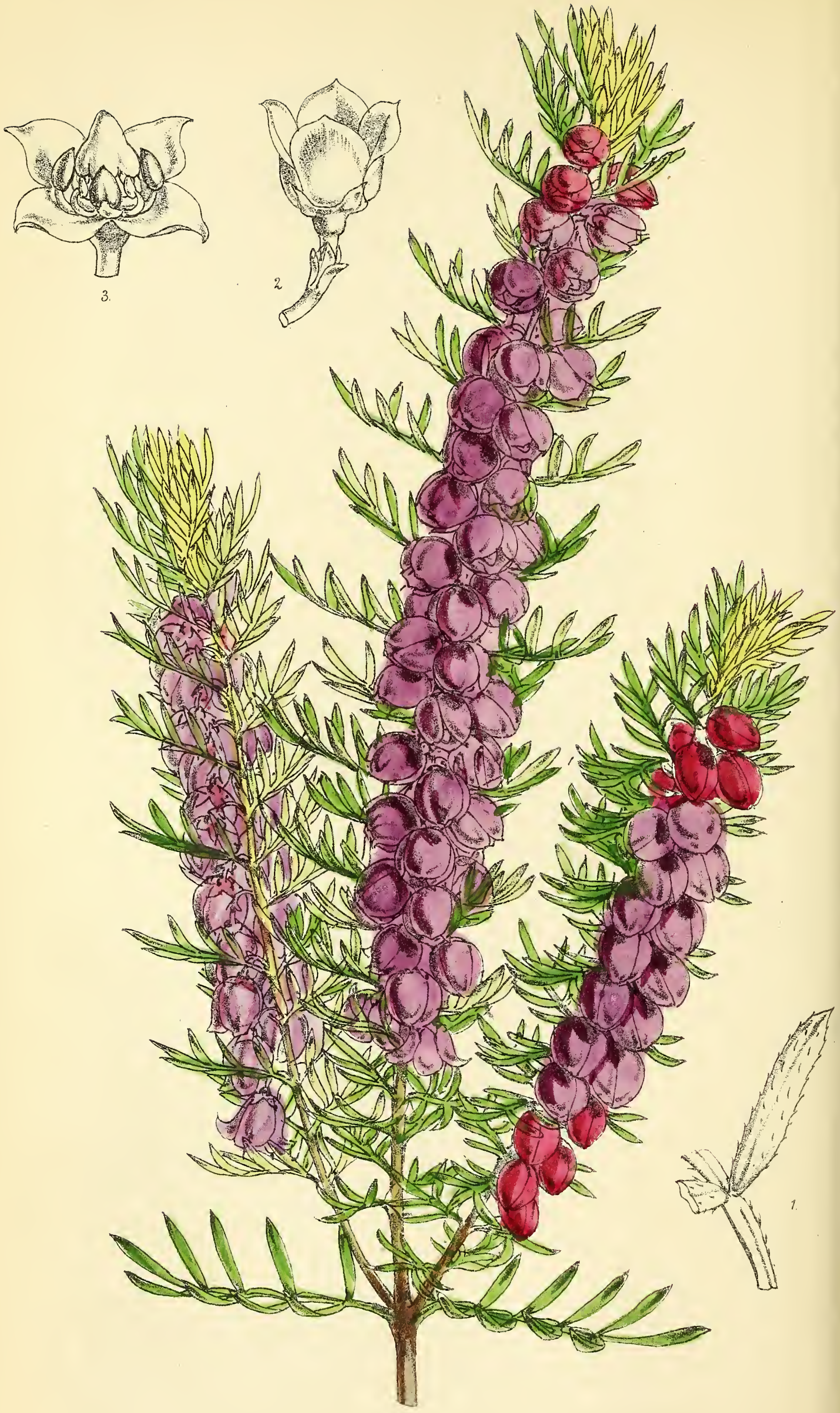
Descr. *Pseudobulb* two to three inches long, between ovoid and conical, faintly-grooved, dark green. *Leaves* six to ten inches long, elliptic-lanceolate, acuminate. *Scape* slender, very pale; bracts small. *Raceme* pendulous, laxly many-

March 1st, 1877.

flowered. *Flowers* on slender pedicels, one and a half to two and a half inches long, pale flesh-coloured; the sepals faintly speckled with red purple; the petals, column, front and sides of the lip nearly white and closely speckled with violet purple; the lower part of the lip golden yellow. *Dorsal sepal* with a slender claw adnate to the column, and an ovate-lanceolate acuminate blade; lateral sepals very much broader, broadly oblong-ovate, acute, spreading, finally undulate. *Petals* narrow linear, strongly falcate, adnate below to the sides of the column, terminating in slender filiform awns. *Lip* very large, laterally compressed, almost boat-shaped, obliquely truncate in front, the everted lips white and spotted with purple, and furnished each with a recurved slender awn; tip abruptly contracted into a stouter awn; sides smooth, shining. *Column* very slender, curved.—*J. D. H.*

Fig. 1, Lip and column:—*enlarged.*

6285



W Fitch del et lith

Vincent Brooks Day & Son Imp

TAB. 6285.

BORONIA ELATIOR.

Native of South Western Australia.

Nat. Ord. RUTACEÆ.—Tribe BORONIEÆ.

Genus BORONIA, *Smith.* (*Benth. et Hook. f. Gen. Plant.* vol. i. p. 291)

BORONIA (Heterandræ) *elatior;* frutex elatus floribundus, ramis patentim pilosis, foliis pinnatis, pinnis 5–13 linearibus planis rigidiusculis glabris v. pilosis, rachi inter pinnas subdilatata, floribus axillaribus cernuis, pedunculis petiolum æquantibus 2-bracteolatis, sepalis ovatis acutis, corollæ subglobosæ fusco-rubræ petalis orbiculatis apiculatis imbricatis, filamentis brevibus subulatis ciliolatis, oppositipetalis incurvis antheris minutis flavis, alternis crassioribus antheris magnis atris sterilibus, ovario hirsuto, stigmate maximo pyramidato obtuso basi 4-lobo.

B. elatior, *Bartl. in Plant. Preiss.* vol. i. p. 170; *Benth*; *Fl. Austral.* vol. i. p. 316.

B. semifertilis, *Muell. Fragm. Phytol. Austral.* vol. ii. p. 98.

A near ally of the sweet-scented *B. megastigma*, tab. 6046, and like it belonging to a small group of the extensive genus with dimorphous anthers and enormously large stigmas, which is confined to Western Australia. Though a very distinct species it is a variable one, especially in the amount of pubescence, which is almost absent or so copious that the branches are almost hirsute with soft-spreading hairs. Its neat habit and abundance of red-brown flowers, which in well-grown species completely hide one side of the branch, render it well worthy of cultivation, as indeed are almost all the species of this genus.

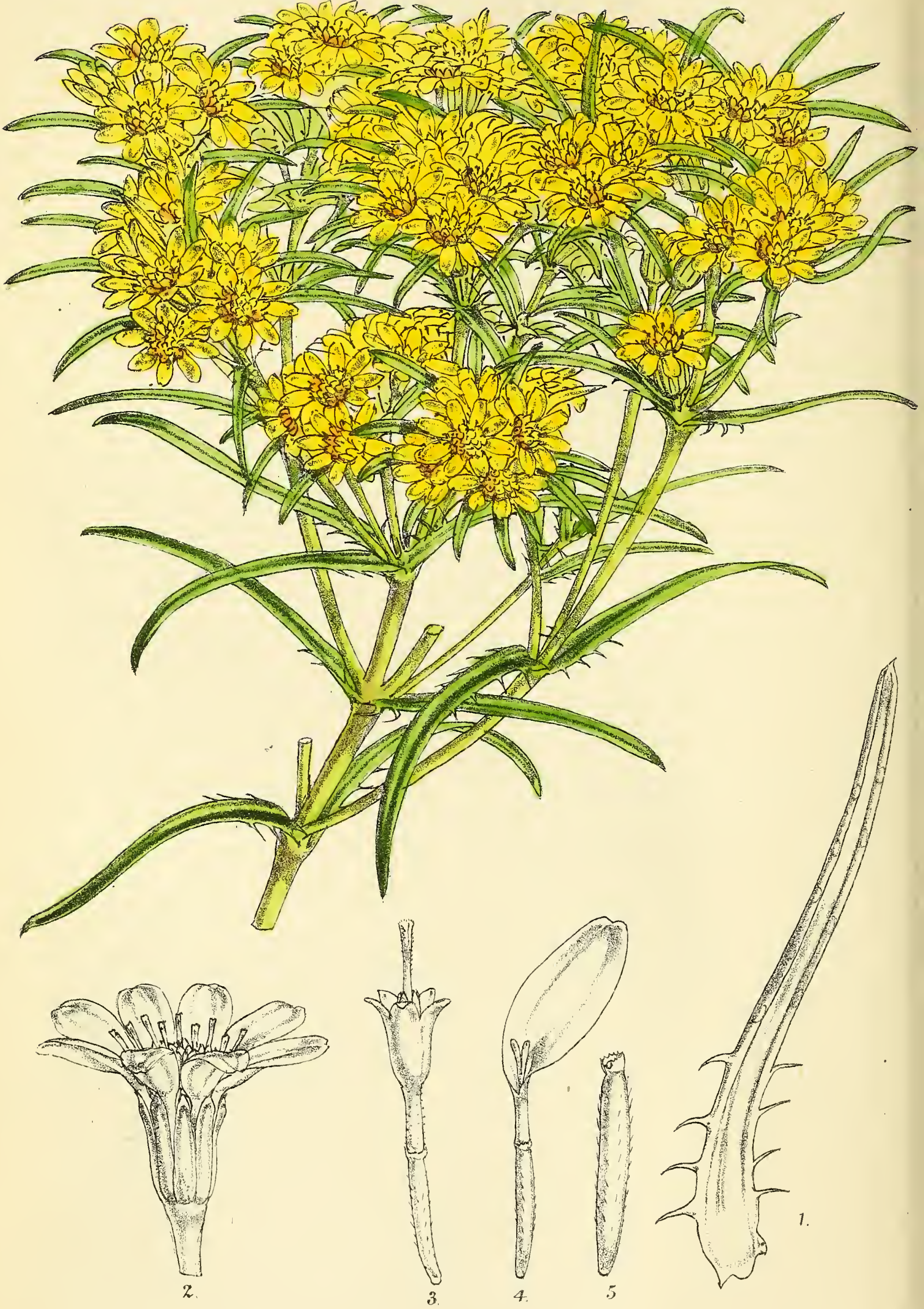
Nearly fifty species of *Boronia* are known, they inhabit heathy and rocky places in Australia, and with the various *Epacrideæ* and *Tetrathecas*, etc., form one of the most beautiful features of the scenery. About fifteen species have been raised and figured in England, but it would be difficult to find half of them now, so entirely has the cultivation of Australian plants been superseded by easier grown soft-wooded things.

MARCH 1ST, 1877.

B. elatior was introduced by Messrs. Veitch, who sent specimens for figuring in May, 1876, at which time also it flowered at Kew.

Descr. A slender twiggy erect shrub, four to five feet high, and much branched. *Stem* and *branches* more or less clothed with long soft, rather distant spreading hairs. *Leaves* close set, uniform and rather distichous on the flowering branches, one to two inches long, by one-half to three-quarters inch broad, pinnate; rachis slightly dilated between the pinnæ which are in 2–6 pairs with an odd one, sessile, linear, acuminate, flat, quite entire. *Flowers* very numerous on the branches, drooping, shortly peduncled; peduncle glabrous or hairy, with two small bracts about the middle. *Sepals* broadly ovate, acuminate. *Corolla* dark, red-brown, nearly globose; petals nearly orbicular, apiculate, much imbricate. *Stamens* 8, filaments very short, subulate; those opposite the sepals with small yellow anthers placed under the stigmatic lobes; then alternate with large black anthers. *Ovary* pubescent, hid under the obtusely pyramidal stigma, which is 4-lobed at the base.—*J. D. H.*

Fig. 1, Portion of leaf; 2, peduncle and flower; 3, flower with petals removed —*all enlarged.*



W Fitch del et Lith

Vincent Brooks Day & Son Imp

Tab. 6286.

PECTIS angustifolia.

Native of New Mexico and Western Texas.

Nat. Ord. Compositæ.—Tribe Helenioideæ.

Genus Pectis, *Linn.* (*Benth. et Hook. f. Gen. Plant.* vol. ii. p. 412.)

Pectis *angustifolia;* annua, glaberrima, caule basi simplici superne dichotome corymboso ramosissimo, ramis obscure angulatis, foliis lineari-subulatis acutis marginibus incrassatis glanduliferis basin versus ciliis paucis subulatis instructis, capitulis terminalibus breviter pedunculatis, involucri bracteis 8 coriaceis dorso convexis, floribus radii ad 8, ligula elliptica emarginata, disci 10–12 tubo puberulo, acheniis angustis estriatis puberulis, pappi squamellis minutis.

P. angustifolia, *Torr. in Ann. Lyc. New York,* vol. ii. p. 214; *A Gray in Pl. Wright,* pars 1. p. 83. *Plant. Fendl.* p. 61; *Coulter, Syn. Flor. Colorado,* p. 55.

P. fastigiata, *A. Gray. Plant Fendl.* p. 62.

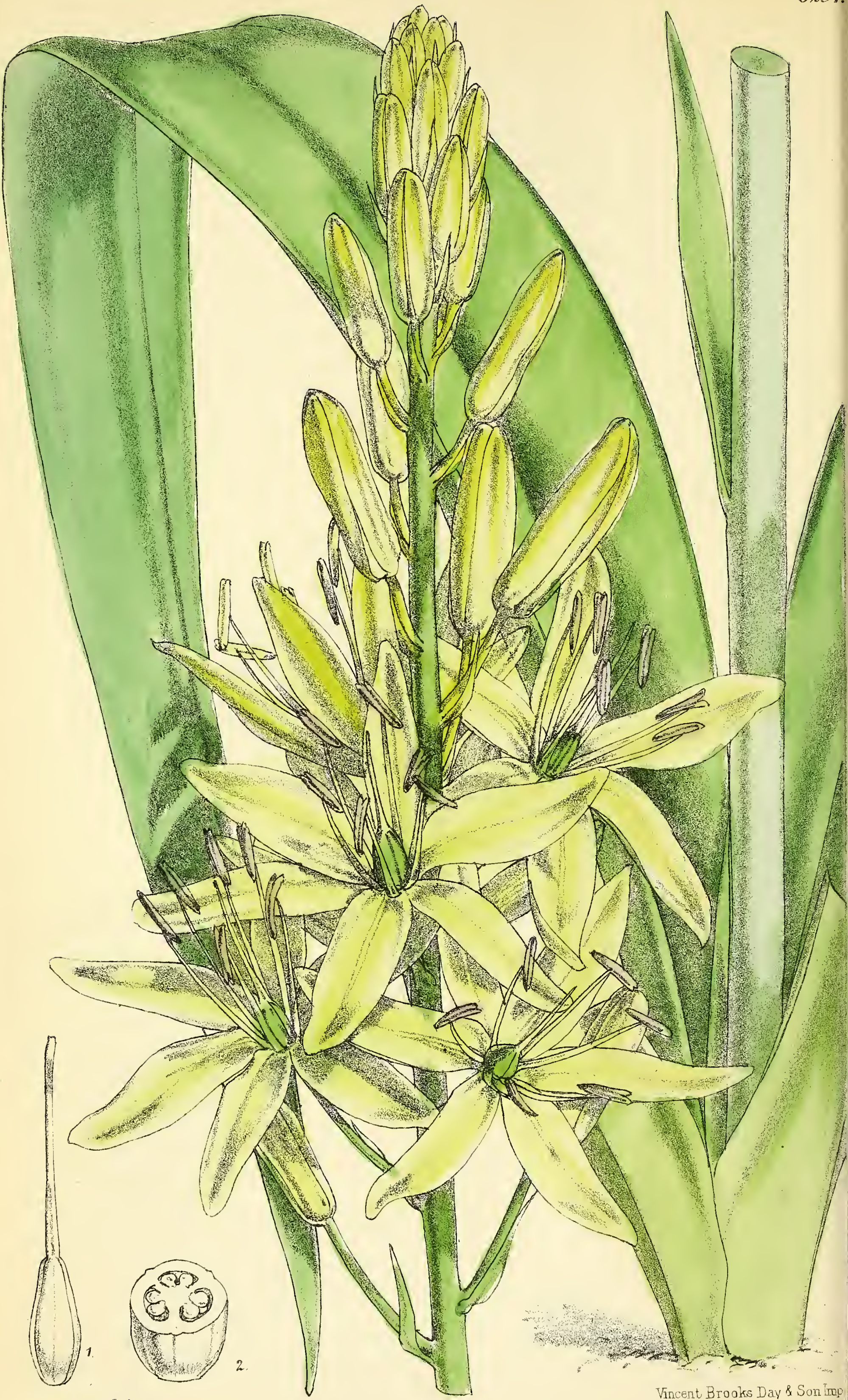
Pectidopsis angustifolia, *D.C. Prod.* vol. v. p. 98.

A very pretty annual, forming dense golden cushions in its native country, from the excessively branched corymbose habit of the plants which grow close together, and the abundance of flowering heads that open at the same time. It was found by all the early travellers in New Mexico, that Colorado district, etc., as by James, Coulter, Gregg, as well as by the later travellers, as Fremont, Wright, Fendler, etc.; and it was introduced into cultivation by Mr. Thompson, of Ipswich, in 1865, who sent specimens in that year to Kew.

The genus *Pectidopsis*, founded by the elder DeCandolle for this plant, on the form of the pappus, has rightly been sunk in *Pectis* by Asa Gray. The organism in question being not only very variable in the genus, but in the present species, in which it consists of sometimes five pointed scales, at others, of retrorsely serrulate bristles, at others of 1–2-awned scales.

Descr. A glabrous annual, six to ten inches high. *Stem* simple at the base, then excessively dichotomously branched in a corymbose manner. *Leaves* opposite, all cauline, one to one and a half inches long, linear-subulate, apiculate; margin's thickened with a few oblong oil-glands, and a few subulate cilia towards the base. *Heads* very numerous, crowded, shortly peduncled, half to three-quarters inch in diameter, golden-yellow. Involucre cylindric, of about eight erect linear obtuse coriaceous bracts that are convex and smooth on the back. *Ray-flowers* about eight, tube short, slender; limb elliptic, obtusely notched at the apex. *Disk-flowers* with a slender puberulous tube and campanulate 5-toothed limb. *Style* of ray with two linear obtuse awns; of disk, slightly thickened, truncate, and notched. *Achene* linear, cylindric, pubescent. *Pappus* in our specimens of very minute scales.—*J. D. H.*

Fig. 1, Leaf; 2, head; 3, disk-flower; 4, ray-flower; 5, achene:—*all enlarged.*



W. Fitch del. et Lith.

Vincent Brooks Day & Son Imp.

Tab. 6287.

CAMASSIA esculenta, *var.* Leichtlinii.

Native of British Columbia.

Nat. Ord. Liliaceæ.—Tribe Scilleæ.

Genus Camassia, *Lindl.* (*Baker in Journ. Linn. Soc.* vol. xiii. p. 256).

Camassia *esculenta* var. *Leichtlinii;* foliis lineari-loratis, racemo laxo subpedali interdum furcato, pedicellis 6–12 lin. longis apice distincte articulatis, perianthii 12–15 lin. longi albi segmentis dorso 7-nervatis.

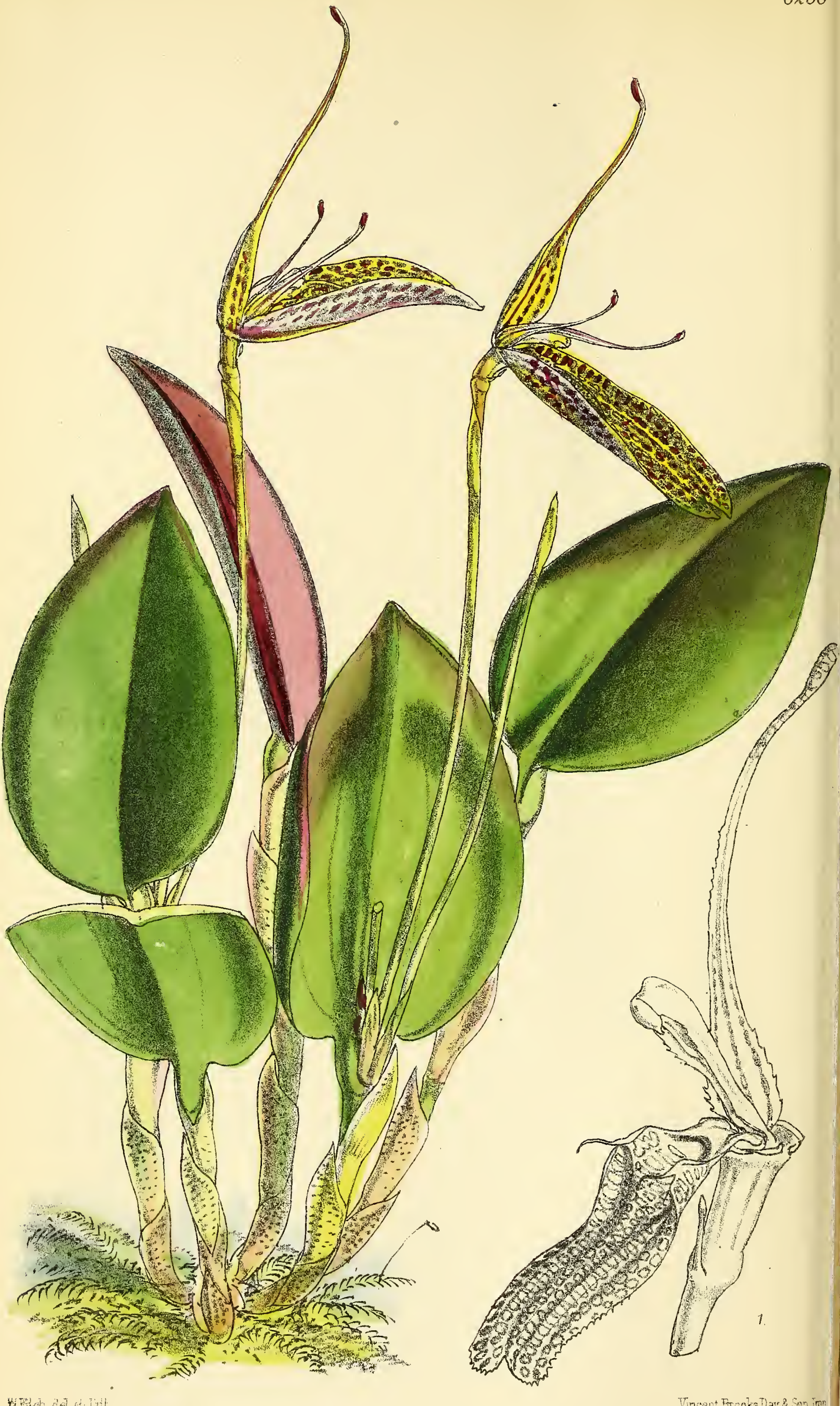
Chlorogalum Leichtlinii, *Baker in Gard. Chron.* 1874, p. 689.

This is a third subspecies of Quamash, differing from the well-known *Camassia esculenta*, Lindl. in Bot. Reg. t. 1486, by its more robust habit, broader leaves, laxer sometimes compound raceme, and larger flowers with more numerous nerves in the keel of the segments of the perianth. At first, led by its compound raceme and distinctly articulated pedicels I was inclined to place it in the genus *Chlorogalum*, but now after having seen further and better specimens, I am convinced that the present is its correct position. It was discovered by Mr. John Jeffrey in British Columbia in 1853. As a garden plant my first knowledge of it was derived from our indefatigable correspondent, Max Leichtlin, Esq. The present sketch was taken from a plant which flowered on the rockery in Kew Gardens in May, 1873. The ordinary colour of the flowers of *C. esculenta* and of *C. Fraseri*, its representative in the Eastern States, is blue, but in all the specimens which I have seen of the present plant the flowers are white.

Descr. Bulb globose, one and a half inch in diameter, with brown membranous tunics. *Leaves* about half-a-dozen in a basal rosette, linear-lorate, a foot or a foot and a half long at the flowering time, an inch or more broad low down, narrowed gradually to the point. *Scape* one and a half to two feet long, terete. *Raceme* a foot long, sometimes branched; pedicels solitary, erecto-patent, half an inch to an inch long, distinctly articulated at the tip; bracts lanceolate, persistent, equalling or exceeding the pedicels. *Perianth* white, one inch to an inch and a quarter long, the lanceolate segments spreading horizontally when fully expanded, furnished with a keel of seven distinct ribs. *Stamens* about half as long as the perianth. *Ovary* oblong; style subulate; stigma obscurely bicuspidate.—*J. G. Baker.*

Fig. 1, The pistil, complete; 2, horizontal section of the ovary:—*both enlarged.*

6288



W. Fitch del. et lith.

Vincent Brooks Day & Son Imp.

Tab. 6288.

RESTREPIA ANTENNIFERA.

Native of the Andes of New Grenada.

Nat. Ord. Orchideæ.—Tribe Pleurothallideæ.

Genus Restrepia, *H. B. and K.; Lindl. Fol. Orchid.*

Restrepia *antennifera;* caulibus fasciculatis simplicibus strictis vaginatis, vaginis subinflatis, foliis breviter petiolatis ovatis obtusis basi rotundatis v. cordatis, scapis gracilibus, sepalo dorsali lanceolato serrulato in caudam elongatam erecto-recurvam apice clavellatam producto, lateralibus labello suppositis lineari-oblongis in laminam oblongam denticulatam apice 2-lobam basin versus utrinque appendice subulato instructam connatis flavidis creberrime kermesino guttatis, petalis filiformibus basi lanceolatis apice clavellatis, labello parvulo panduriformi obtuso sepalis lateralibus appresso iisque concolore, columna gracili marginibus erosis.

R. antennifera, *H. B. and K. Nov. Gen. and Sp.* vol. i. p. 294, t. 94; *Lindl. Gen. and Sp. Orchid.* 14; *Id. Fol. Orchid Restrepia,* p. 1; *Reichb. in Walp. Ann.* vol. vi. p. 203; *Lemaire, Ill. Hortic.* t. 601.

R. maculata, *Lindl. Orchid. Lind.*

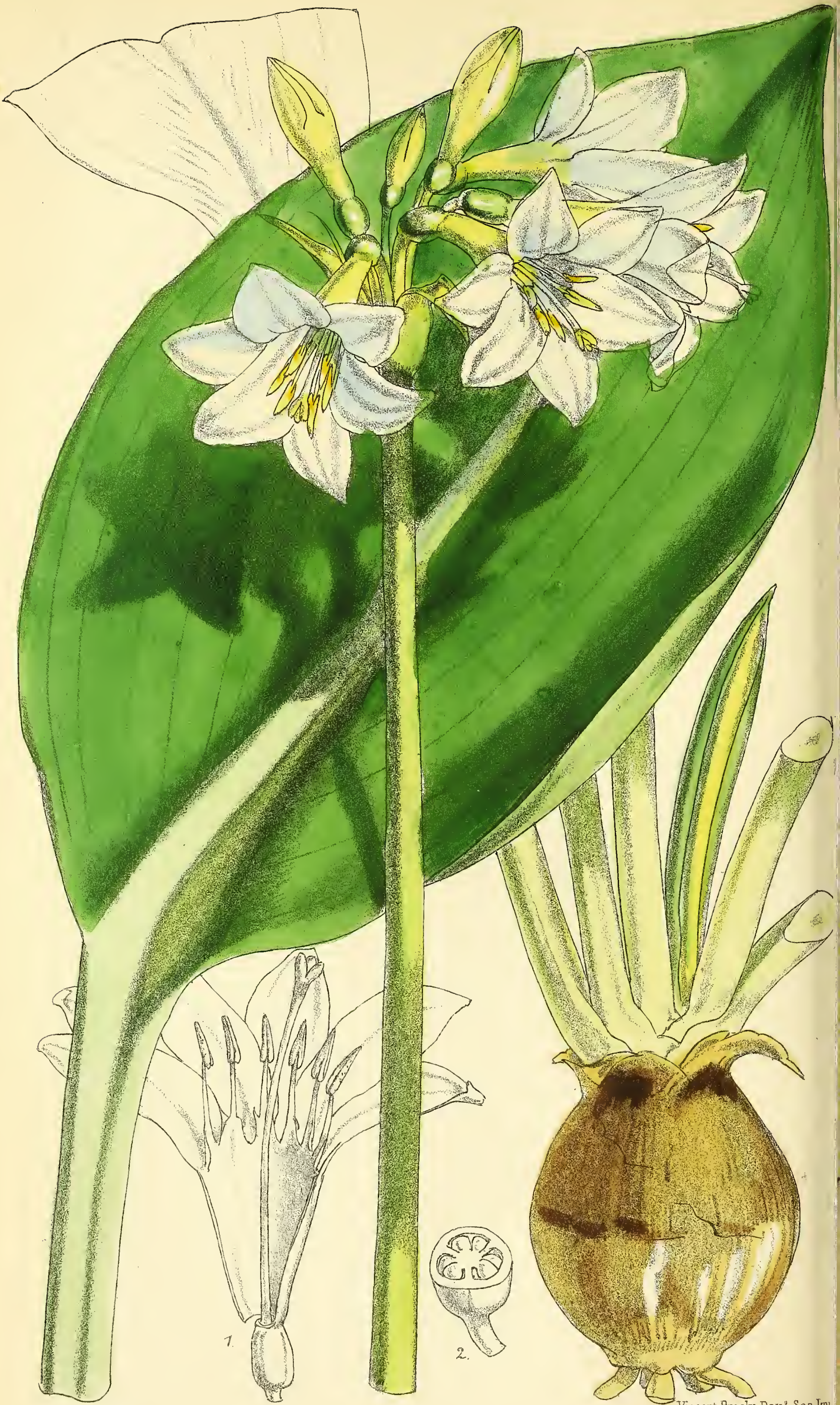
This, the first discovered and described species of the singular genus *Restrepia*, has not hitherto been accurately figured and described. Humboldt's plate, which though done from a dried specimen, is very characteristic in most particulars, represents a proliferously 2-leaved state, and omits the serrulation of the outer perianth segments and margins of the column, as also the free tips of the lateral sepals, whilst Lemaire represents the stem sheaths as uniformly lacerate and terminated by a filiform point, and omits both the serrulation of the perianth, etc., and the subulate processes on the outer margins of the lateral sepals.

R. antennifera was discovered by Humboldt on the trunks of trees near Pasto, at an elevation of 9000 feet (French), and it has since been found by several travellers in different localities in New Grenada, between 6000 and 10,500 feet, and in Venezuela. Our plant flowered in the cool orchid-house at Kew, in January of the present year.

Descr. *Stems* tufted, stout, simple, erect or ascending, two to four inches high, clothed with loosely imbricating sheaths which have obtuse oblique mouths and are white spotted with red. *Leaf* two and a half to three and a half inches long, shortly stoutly petioled, ovate, obtuse or subacute, rounded or cordate at the base. *Scapes* longer than the leaves, very slender, 1-flowered; bract appressed. *Dorsal sepal* one and a half inches long, lanceolate, tapering into a filiform tail with a clubbed red-purple tip; blade serrulate, pale yellow, with three lines of red-purple dots. *Lateral sepals* united into a linear-oblong serrulate lamina as long as the upper sepal, 2-lobed at the tip, and with a subulate appendage on each margin towards the base, slightly longitudinally folded, yellow with eight to ten close-set rows of large red spots. *Petals* like the dorsal sepal, but very much smaller. *Lip* very small, appressed to the lateral sepals, oblong-panduriform, rounded at the tip. *Column* slender, pale, with narrow serrulate wings.—*J. D. H.*

Fig. 1, Flower with lateral petals removed :—*enlarged.*

6289



W Fitch del et Lith

Vincent Brooks Day & Son Im

TAB. 6289.

CALLIPHRURIA SUBEDENTATA.

Native of New Grenada.

Nat. Ord. AMARYLLIDACEÆ.—Tribe PANCRATIEÆ.

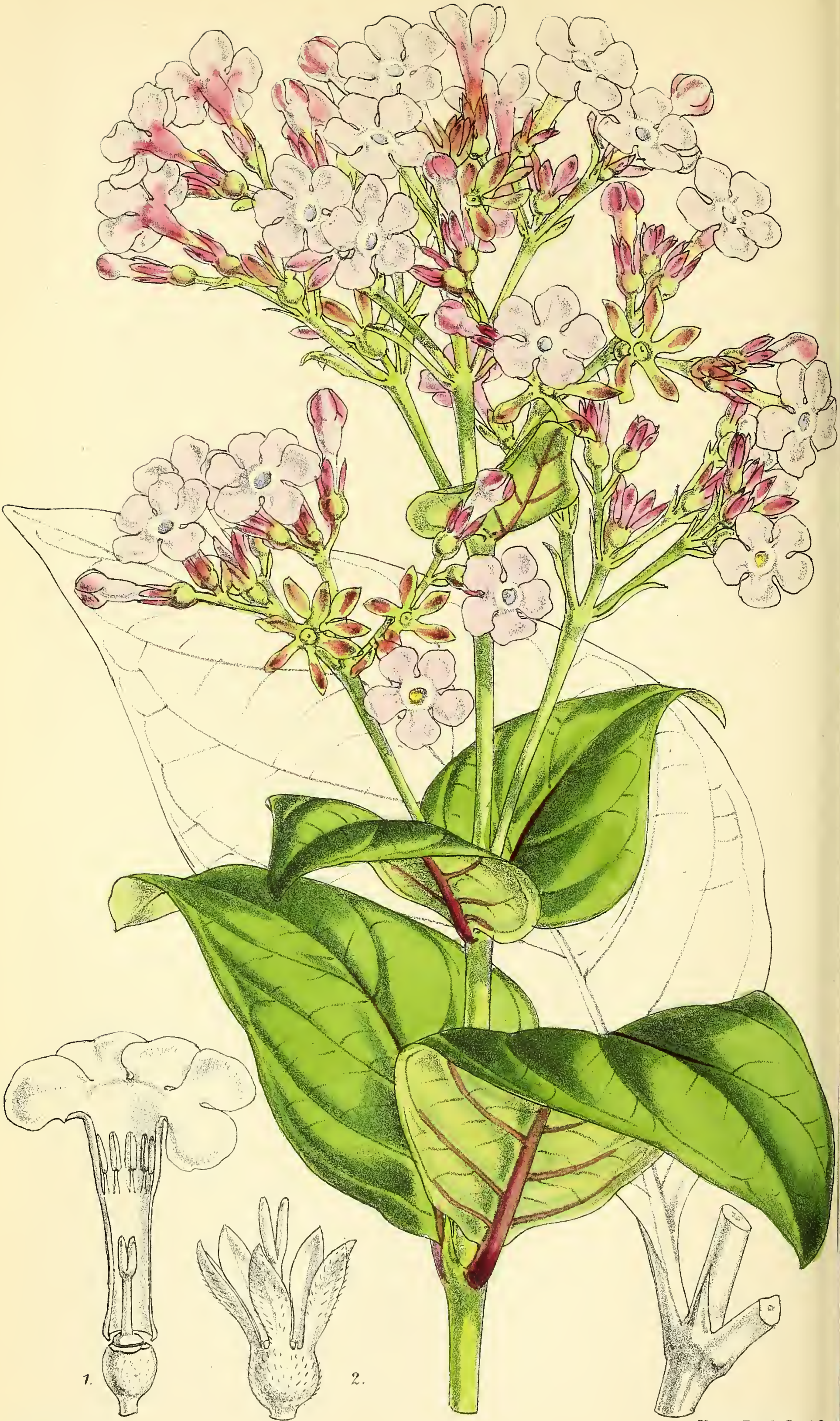
Genus CALLIPHRURIA, *Herbert; (Kunth, Enum.* vol. v. p. 692).

CALLIPHRURIA *edentata;* bulbo ovoideo tunicato, foliis circiter 4 longe petiolatis oblongis viridibus, venis pluribus perspicuis arcuatis, pedunculo pedali vel sesquipedali subcompresso, umbellis 6–8-floris, spathæ valvis lanceolatis, pedicellis flore multo brevioribus, ovario ovoideo-trigono, perianthii infundibularis sesquipollicaris segmentis oblongis tubo æquilongis flore expanso falcatis, staminibus limbo subduplo brevioribus, filamentis linearibus interdum exappendiculatis interdum dente parvo prope basin prædito, stylo perianthio subæquilongo apice stigmatoso leviter tricuspidato.

This is a plant which has been in English gardens for many years, and in the absence of flowers has passed for *Eucharis candida.* Lately it has flowered at several places almost simultaneously, and it turns out to be no *Eucharis* at all, but a near neighbour of the *Calliphruria Hartwegiana* which was figured in the Botanical Magazine last year (tab. 6259). The present plant, however, differs materially from *C. Hartwegiana* in the filaments, in which the toothing is sometimes entirely wanting, so that for the botanical systematist it forms an awkward connecting link between the tribes *Amaryllideæ* and *Pancratieæ.* The *Eucharis candida* which was distributed by Mr. William Bull in 1876, and which was figured in his catalogue for that year, is the true plant so called by Planchon. The present plate was made from a specimen sent by Mr. G. R. Sheath, which flowered in the garden of M. H. Beaufoy, Esq., at South Lambeth in December, 1876.

DESCR. *Bulb* ovoid, one and a half inch in diameter, with a few brown membranous tunics. *Leaves* about four to a bulb, cotemporary with the flowers; petiole nearly a foot long, channelled down the face; blade oblong, acute, bright green, rather fleshy, six to eight inches long by more than half as broad, with many distinct arching ribs. *Peduncle* one to one and a half foot long, slightly compressed. *Flowers* six to eight in an umbel; spathe-valves lanceolate; pedicels half to three-quarters inch long; unexpanded flowers suberect; expanded flowers horizontal or drooping, scentless. *Ovary* green, ovoid-trigonous, quarter inch long; perianth pure white, funnel-shaped, one and a half inch long, the oblong segments half as long as the tube, spreading falcately when the flower is fully expanded. *Stamens* inserted at the throat of the tube, about half as long as the segments; filaments linear; sometimes entirely without any tooth, sometimes furnished with a more or less distinct tooth at the base on one or both sides; anthers yellow, linear-oblong; style as long as the perianth, obtusely lobed at the stigmatose tip.—*J. G. Baker.*

Fig. 1. Flower, cut open; 2, horizontal section of the ovary:—*both magnified.*



W Fitch del et Lith

Vincent Brooks Day & Son

Tab. 6290.

RONDELETIA Backhousii.

Native of Tropical America.

Nat. Ord. Rubiaceæ.—Tribe Rondeletieæ.

Genus Rondeletia, *Linn.* (*Benth. et Hook. f. Gen. Plant.* vol. ii. p. 48.)

Rondeletia *Backhousii;* fere glaberima, caule gracili, ramis teretibus, foliis breviter petiolatis elliptico-ovatis subacutis supremis ovatis sessilibus, nervis remotis arcuatis, stipulis triangulari-subulatis, paniculis terminalibus amplis ramosis basi foliaceo-bracteatis, bracteis ad axillas linearibus v. lineari-oblongis, bracteolis subulatis, floribus breviter gracile pedicellatis 5-meris, calycis puberuli tubo subgloboso, limbi lobis obovato-oblongis v.-linearibus obtusis v. acutis corollæ tubo gracili dimidio terve brevioribus, corollæ roseæ lobis rotundatis, fauce glaberrima, ore obscure annulato, staminibus medio tubo-insertis, filamentis brevibus, antheris inclusis lienari-oblongis æquilongis, stylo brevi, stigmatibus linearibus.

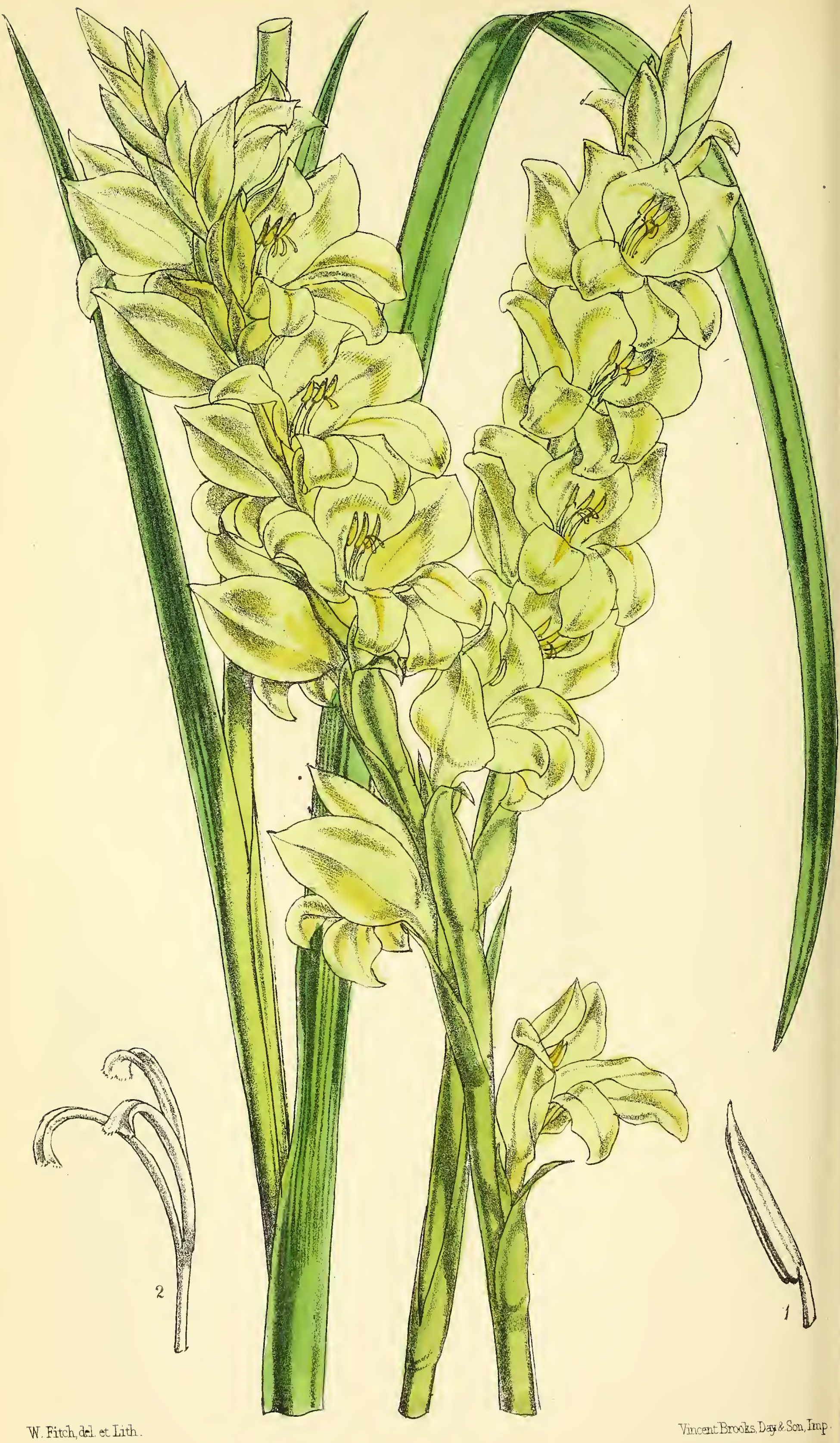
This charming plant was received from Messrs. Backhouse of York, about the year 1860, without locality or name, and has been cultivated ever since in the Palm-house at Kew, where it flowers freely annually in autumn, but does not fruit. I have in vain endeavoured to name it, but it agrees with no described species, nor is there any at all like it in the Herbarium, except one from the Ecuadorian Andes, collected by Spruce (n. 5116), which has lanceolate acuminate leaves that are very pubescent beneath in the young state, and have many nerves. The genus is a very large one, including upwards of 60 species, and extends from Mexico to South Brazil. Their flowers are probably dimorphic, the males having short styles and stamens comparatively high up the tube; in which case our plant is a male. I have named it in compliment to its introducers, Messrs. Backhouse, of York, who can give me no information as to its origin, but suppose that it was obtained from their continental correspondent.

Descr. A small shrub, glabrous in all its parts, except the pedicels, calyx and corolla-tube, which are minutely pubescent. *Stems* and *branches* slender, terete, green. *Leaves* opposite, shortly petioled, four to nine inches long, ovate, subacute, membranous, green with red petiole and veins beneath;

april 1st, 1877.

veins arched, few, distant; stipules triangular-subulate, appressed, persistent. *Panicle* terminal, erect, laxly many-flowered, trichotomously branched, the lower branches springing from the axils of subsessile ovate acuminate leaves; bracts linear-oblong, green, rather appressed to the branches; bracteoles subulate. *Flowers* pedicelled, half to three-quarter inch long, rose-coloured. *Calyx-tube* nearly globose; limb of five linear-obovate acute or obtuse segments. *Corolla-tube* slender, twice or thrice as long as the calyx-lobes, pubescent; *Limb* one-third of an inch diam., lobes rounded; mouth with an obscurely thickened ring; throat glabrous. *Stamens* small, inserted in the middle of the tube, with short filaments and linear-oblong included anthers. *Style* very short, stigmatic-lobes linear.—*J.D.H.*

Fig. 1, Flower with calyx lobes removed and corolla laid open; 2, flower with corolla removed:—*both enlarged.*



W. Fitch, del. et Lith.

Vincent Brooks, Day & Son, Imp.

TAB. 6291.

GLADIOLUS OCHROLEUCUS.

Native of the Transvaal territory and Kaffraria.

Nat. Ord. IRIDACEÆ.—Tribe GLADIOLEÆ.

Genus GLADIOLUS, *Linn.* (*Baker in Journ. Linn. Soc.* vol. xvi., *inedit*).

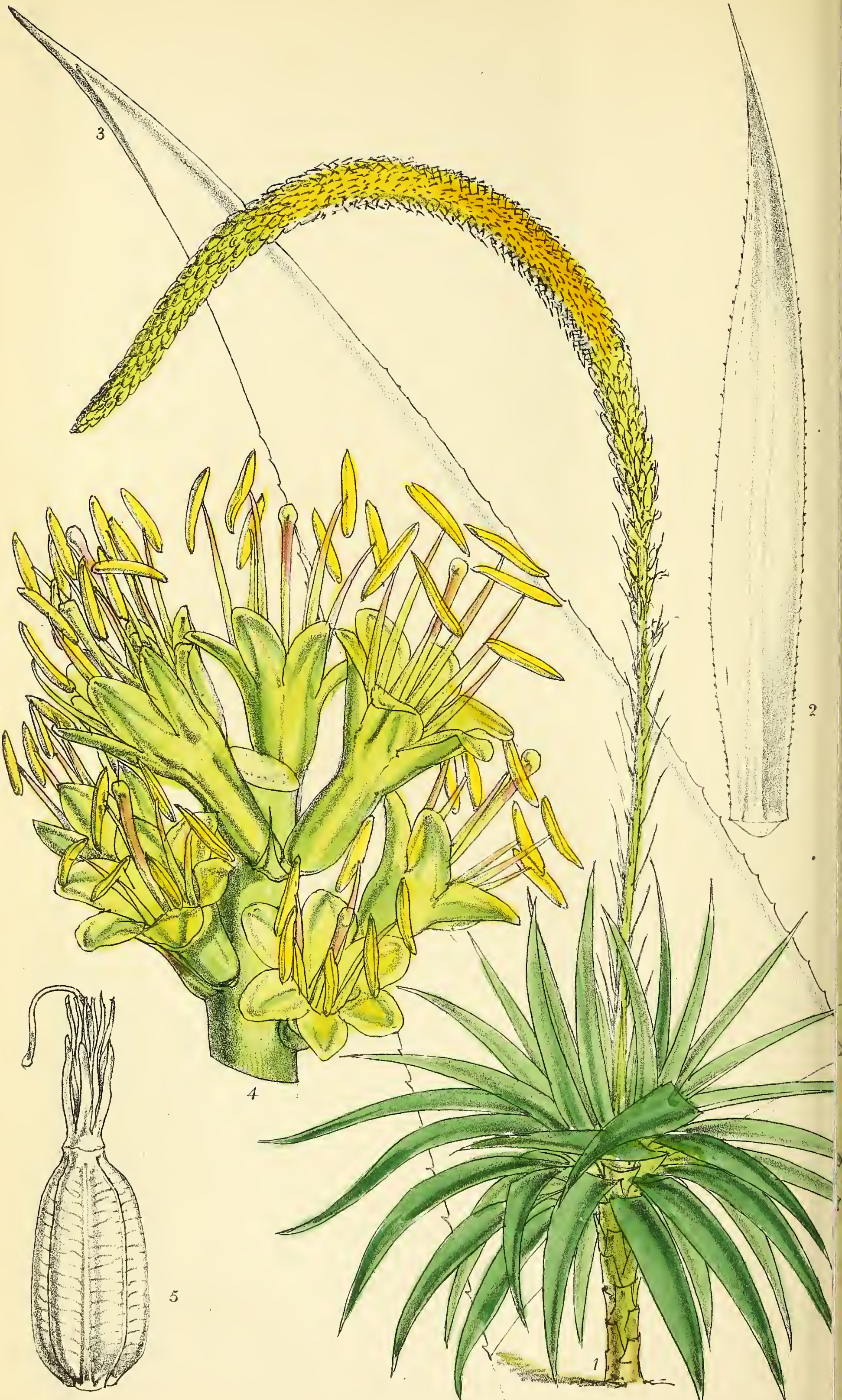
GLADIOLUS *ochroleucus;* bulbo ovoideo tunicis membranaceo-fibrosis, foliis basalibus 4–6 linearibus pedalibus acuminatis rigide coriaceis glabris marginibus et costâ incrassatis stramineis, caule foliis breviore foliis 1–2 reductis vaginato, racemo semipedali 10–15 floro inferne laxo, spathæ valvis 6–12 lin. longis viridibus acutis margine membranaceis, exteriore oblongo-lanceolata, interiore lanceolata, perianthii sulphurei sesquipollicaris tubo curvato cylindrico segmentis oblongis unguiculatis obtusis tubo duplo longioribus, tribus inferioribus decurvatis angustioribus, staminibus perianthio distincte brevioribus, antheris ligulatis mucronatis, stylo profunde trifurcato.

G. ochroleucus, *Baker in Trimen Journ.*, 1876, p. 182.

This new *Gladiolus* belongs to a group of which we now know upwards of a dozen species, all of which are comparatively recent discoveries, marked in the subgenus *Eugladiolus* by flat leaves and flowers, much smaller than in the great ensiform-leaved kinds, such as *psittacinus*, *cardinalis*, *and Cooperi.* The species of this group which have been already figured in the *Botanical Magazine*, are *G. sericeo-villosus*, tab. 5427, *G. Papilio*, tab. 5565 and *G. purpureo-auratus*, tab. 5944; the present plant was discovered by the Rev. R. Baur, in Transkeian Kaffraria, and was first sent to the Kew harbarium by our indefatigable correspondent, Mr. McOwan in 1874. Mr. Baur describes it as growing in grassy places at an elevation of two thousand feet above sea-level, and flowering in March. We owe the introduction of it in a living state to Mr. Bull, who imported it from the Transvaal territory and flowered it last autumn.

DESCR. *Bulb* ovoid, under an inch in diameter, the membranous tunics rather splitting up into fibres. *Basal leaves* four to six, produced in a distichous rosette, linear, reaching a length of twelve to fifteen inches, and a breadth of half an inch, rigidly coriaceous, glabrous, acuminate, the midrib and margins thickened and straw-coloured. *Stem* under a foot long, slender, sheathed by one or two reduced leaves. *Spike* simple, half a foot long, ten to fifteen flowered, lax in the lower half; spathe-valves half to one inch long, acute, green with a membranous colourless edge and tip, the outer one oblong-lanceolate, the inner one lanceolate. *Perianth* primrose-yellow, fifteen to eighteen lines long; tube curved, cylindrical, three-eighths of an inch long; segments all oblong-unguiculate, obtuse, twice as long as the tube, the three upper ones arching, about half an inch broad, the three lower ones decurved, a quarter to one-third inch broad. *Stamens* distinctly shorter than the perianth-segments; anthers one-third inch long, ligulate, cuspidate. *Style* deeply three-forked, the stigmas just overtopping the anthers.—*J. G. Baker.*

Fig. 1. Anther, with part of filament; 2, upper part of style, showing the three stigmatose forks :— *both magnified.*


3
2
4
5
1

TAB. 6292.

AGAVE (LITTŒA) SARTORII.

Native of Mexico and Guatemala.

Nat. Ord. AMARYLLIDACEÆ.—Tribe AGAVEÆ.

Genus AGAVE, *Linn* (*Jacobi in Hamburg Gartenzeit.*, 1864, *et anni seq.*).

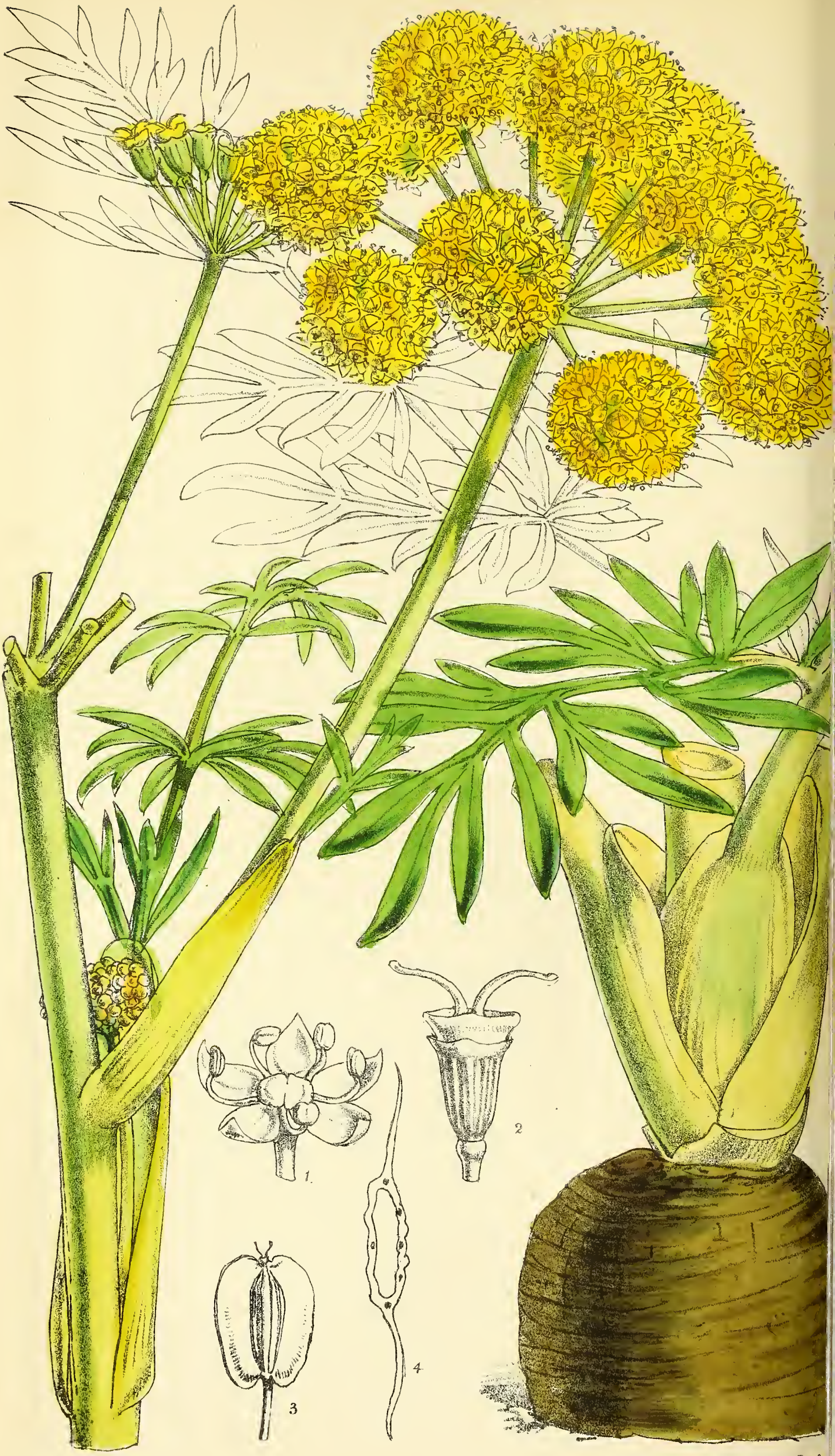
AGAVE (*Littœa*) *Sartorii;* breviter caulescens, caudice interdum furcato, foliis circiter 30 laxe rosulatis lanceolatis bipedalibus carnoso-coriaceis viridibus sæpissime albido-vittatis, e medio ad apicem angustatis, mucrone terminali haud pungente, aculeis marginalibus minutis crebris patentibus deltoideis inæqualibus castaneis, scapo foliis 2–3-plo longiore foliis reductis pluribus linearibus erectis prædito, panicula cylindrica subspicata tripedali cernua, pedunculis et pedicellis subobsoletis, bracteis parvis linearibus basi deltoideis, perianthio viridi luteo tincto, ovario oblongo, tubo late infundibulari ovario æquilongo fauce dilatato segmentis oblongis erecto-falcatis, genitalibus longe exsertis.

A. Sartorii, *K. Koch in Wochensch.* 1860, p. 37; *Jacobi, Monog. Agave*, p. 128.
A. aloina, *K. Koch, loc. cit.* p. 37.
A. Noackii, *Jacobi, Monog. Agave*, p. 125.
A. pendula, *Schnittspahn*; *Jacobi, Monog. Agave*, p. 130.
A. cæspitosa, *Todaro Hort. Bot. Panorm*, p. 32, t. 8.
FOURCROYA Noackii, *Hort.*

This is a very well-marked species of *Agave*, easily recognisable in the large group of the carnoso-coriaceæ by its caulescent habit, which is very rare in the genus as a whole, and confined to this single species in the group in question. It was first introduced to the Berlin botanic garden by Dr. Rohrbach about 1850, and has since been received from the district of Orizaba, in Mexico. Our first notice of its flowering is by Dr. Schnittspahn in 1857 in the Zeitschrift des Gartenbauvereines zu Darmstadt. It is fully described, so far as leaves go, under three different names in the monograph of Jacobi, and has lately been figured under a fourth by Todaro from a specimen that flowered at the botanic garden at Palermo. The present plate is after a drawing of a specimen that flowered with Mr. Wilson Saunders, at Reigate, in March, 1870, and it has flowered at least twice at Kew within the last few years; the last time this present spring.

Descr. *Caudex* reaching in the specimen drawn a length of a foot, forked dichotomously, and bearing two tufts of leaves. *Leaves* about thirty in a lax rosette, lanceolate, two feet long, three inches broad at the middle, narrowing gradually to a non-pungent point, and to a breadth of two inches above the dilated base, somewhat fleshy in texture, one-eighth to a quarter inch thick in the centre, an inch thick at the base, bright green, with often a broad pale band down the centre, the margin furnished with copious close, unequal, deltoid, spreading, chestnut-brown spines. *Scape* twice or three times as long as the leaves, furnished with numerous erect linear reduced bract-like leaves. *Panicle* cernuous, subspicate, cylindrical, three feet long; peduncle and pedicels nearly obsolete; bracts linear, from a dilated base, much shorter than the flowers. *Perianth* green, with a yellow tinge in the upper part; ovary oblong, half-inch long; tube broadly funnel-shaped, as long as the ovary, dilated at the throat; segments oblong, obtuse, half-inch long, erect-falcate when fully expanded. *Filaments* inserted in the perianth-tube, subulate, reaching a length of eighteen to twenty-one lines; anthers ligulate, versatile, three-eighths of an inch long. *Style* reaching as high as the top of the stamens; stigma capitate. *Capsule* oblong-trigonous, one and a quarter to one and a half inches long.—*J. G. Baker.*

Fig. 1, The whole plant, *much reduced in size;* 2, a leaf *less reduced;* 3, summit of a leaf; 4, portion of the panicle, with several pairs of flowers; 5, capsule, *the three last natural size.*



W. Fitch del. et lith.

Vincent Brooks, Day &

TAB. 6293.

THAPSIA GARGANICA.

Native of the Mediterranean Region.

Nat. Ord. UMBELLIFERÆ.—Tribe LASERPITIEÆ.

Genus THAPSIA, *Linn.*; (*Benth. et Hook. f. Gen. Plant.* vol. i. p. 930).

THAPSIA *garganica*; glaberrima v. foliis parce setoso-pilosis, caule robusto tereti, foliis crasse petiolatis ambitu late ovatis 2-3-pinnatisectis laciniis linearibus oblongisve decurrentibus obtusis subacutisve integerrimis v. 2–8-fidis membranaceis supra nitidis marginibus sæpe revolutis, supremis sæpius ad vaginas tumidas reductis, umbellis crasse pedunculatis amplis longe 6–15-radiatis, involucro involucellisque obsoletis, floribus flavis interioribus in quævis umbellula masculis, fructu $\frac{2}{3}$-$\frac{3}{4}$ poll. longo basi et apice 2-lobo, nucleo anguste ellipsoideo 5-costato alis latis undulatis nitidis transverse striolatis.

T. garganica *Linn. Mant.* p. 57; *DC. Prod.* vol. ii. p. 202; *Desf. Fl. Atlant.*, vol. i. p. 262; *Boiss. Flor. Orient.* vol. ii. p. 1067; *Gouan, Ill. et Obs. Bot.* p. 18, t. 10; *Sibth. Flor. Graec.* t. 287; *Ait. Hort. Kew, ed.* 2, vol. i. p. 156.

This plant, the *Θαψια* of Dioscorides, has been celebrated for its healing powers from very early times, and has further been supposed, but on insufficient grounds, to be the Silphium of Cyrenaica, where it abounds. It inhabits the whole Mediterranean region, from the south of Spain and Morocco to Greece, Turkey, Rhodes, and Crete, growing in fields and in good soil. The root is used externally as a specific against pains of all kinds, and in the reduction of tumours by the Moors of N. Africa, where it is known under the name of Dreeas; but I am not aware that it has a place in the Pharmacopœia of any civilized people. That it cannot be the famous Silphium of the ancients has been demonstrated by Oersted of Copenhagen, who shows that the plant represented on the coins of Cyrenaica as the Silphium has the remarkable character of growth of the true Asafœtida, and wholly differs from that of *Thapsia*; whence it follows, either that a plant like Asafœtida was formerly native of Cyrenaica, but is no longer found there, or that the true Asafœtida was cultivated there, which seems to me not to be impossible.

For the opportunity of figuring the *Thapsia* I am indebted

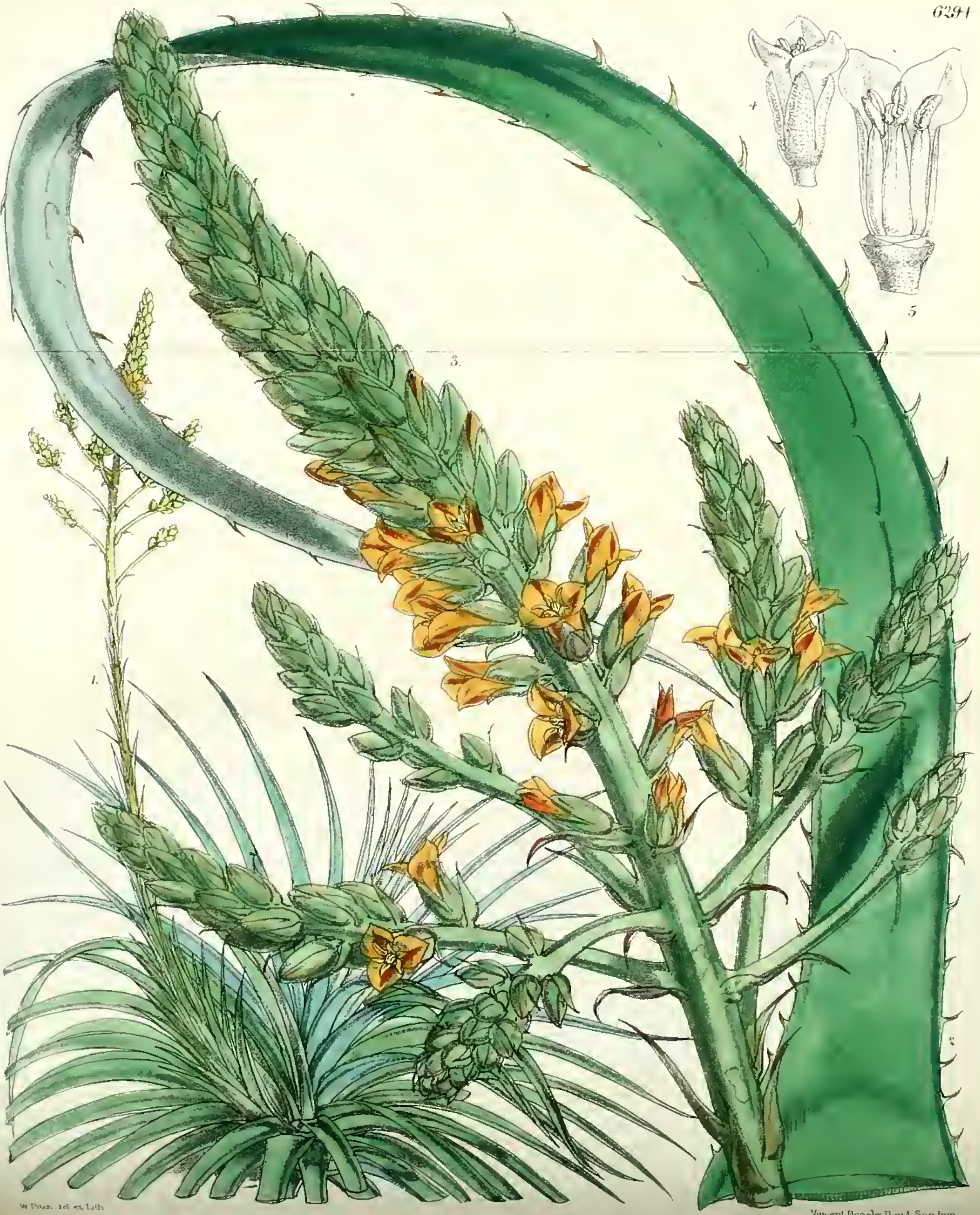
APRIL 1ST, 1877.

to my friend Dr. Leared, author of 'Morocco and the Moors,' who procured roots from the interior of that country, which he gave to R. S. Newall, F.R.S., of Ferndene, Gateshead, with whom it flowered in a cool green-house in January of the present year. It has been cultivated at Kew for many years, but is often killed; and I have never seen it flower in this country in the open air, though in 'Hortus Kewensis' it is stated to do so in July. It was originally introduced into Mr. Sutherland's Garden in Edinburgh in 1683.

DESCR. A tall, stout, sparingly-branched umbellifer, wholly glabrous, or with scattered spreading setose hairs on the petiole rachis and nerves beneath of the leaves. *Roots* large, fusiform. *Stem* cylindric, striated. *Leaves* on stout petioles with loose oblong sheaths; blade a foot long or under, ovate, twice to thrice-pinnatisect; segments cut into oblong or linear, obtuse or acute, often two to five lobed segments, margins usually recurved, quite entire, nerves reticulate. *Umbels* stoutly peduncled, rays six to fifteen, spreading; umbellule globose, an inch in diameter. *Involucre* and *involucels* obsolete. *Flowers* yellow, pedicelled, quarter of an inch in diameter; those in the centre of the umbellule male only. *Calyx-limb* obsolete. *Petals* obovate-lanceolate, tips incurved. *Stamens* with slender filaments. *Stylopods* very large and broad; styles diverging. *Fruit* two-thirds to three-fourths of an inch long, broadly oblong, deeply bilobed above and below; disk elliptic-lanceolate, with five ribs; wings broad, scarious, shining, undulate, transversely striate.—*J. D. H.*

Fig. 1, Male flower; 2, female do. with petals and stamens removed; 3, ripe fruit; 4, transverse section of a carpel: all but 3 *enlarged.*

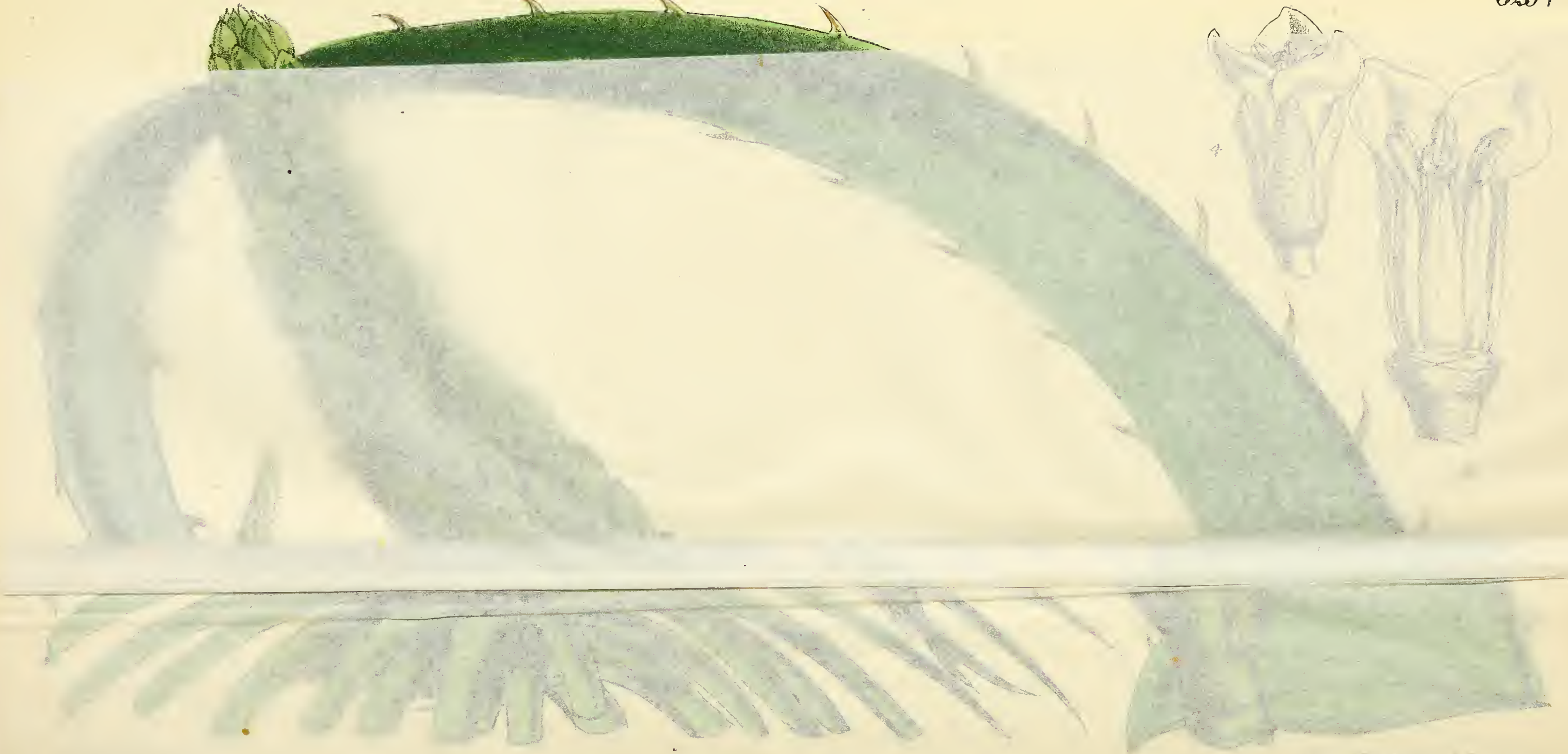
6294



W Fitch del et lith

Vincent Brooks, Day & Son Imp

6294



TAB. 6294.

DYCKIA FRIGIDA.

Native of Brazil.

Nat. Ord. BROMELIACEÆ.—Tribe POURRETIEÆ.

Genus DYCKIA, *Schult. fil.* (*C. Koch in Append.* iv. *ad indic. Sem. Hort. Bot. Berol. ann.* 1873).

DYCKIA *frigida;* acaulis, robusta, foliis dense rosulatis patenti-recurvis e basi 1½–2-pollicari ad apicem pungentem sensim acuminatis concavis supra viridibus lucidis subtus striolatis glaucis marginibus et subtus apicem versus spinis corneis remotis uncinatis onustis, scapo 2-pedali robusto bracteato, bracteis ovato-subulatis spinoso-acuminatis, panicula pedali robusta furfuraceo-tomentosa griseo-brunnea ramis basin versus nudis, floribus subconfertis, bracteolis ovato-subulatis acuminatis flores æquantibus, sepalis oblongis obtusis furfuraceis viridibus, petalis late unguiculatis lamina late ovata obtusa ochracea, filamentis crassis cum petalis basi in tubum connatis, antheris oblongis incurvis, ovario angusto, stigmatibus brevibus, capsulæ perianthio duplo longioris carpellis liberis loculicidis.

POURRETIA *frigida*, Hort. Lind.

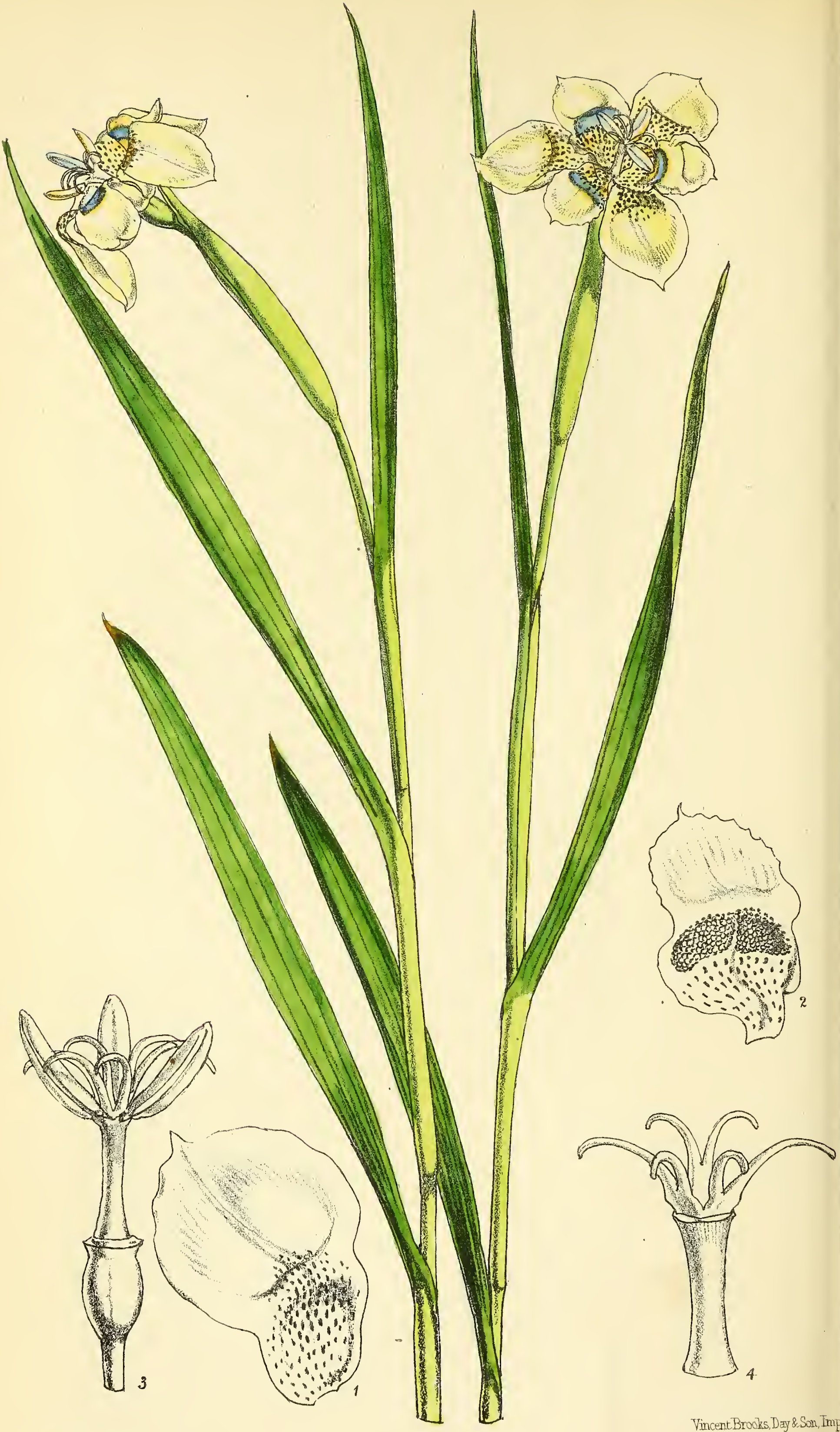
I advance this as a new species with much hesitation, having no better means of discriminating the species of this difficult genus than is afforded by C. Koch's Conspectus, quoted above, from which it would appear to be allied to the *D. remotiflora*, Ott. and Dietr., and *D. altissima*, Lindl. Bot. Reg. 1841, Misc. p. 84, (erroneously cited as *gigantea*, by Lemaire), from both of which it differs by its almost free filaments (not attached to the length of the claw of the petal). From *D. Princeps*, Lemaire (Ill. Hort. t. 224–5), it appears to differ in the smaller flowers and longer sepals, but it is certainly very closely allied both to that plant and to those above mentioned.

The species of *Dyckia* are mostly Brazilian, and some of them come from the colder southern provinces. This is probably the case with the accompanying plant, which flowered freely in the cool half of the succulent house, at Kew, in February of the present year, and is now maturing its capsules. It was received from Messrs. Linden, under the name of *Pourretia frigida.*

MAY 1ST, 1877.

Descr. A stemless aloe-like herb. *Leaves* densely rosulate, sixty to eighty together at the crown, one and a half to two feet long, one and a half to two inches broad at the base, gradually contracted from thence to the pungent's point, spreading and recurved, smooth and concave above, glaucous striolate and rounded on the back, margins and middle-line at the back towards the apex armed with stout hooked yellow-brown spines one quarter of an inch long. *Scape* lateral, ascending, stout, and as well as the inflorescence clothed with pale furfuraceous down; covered densely below and more sparingly above with bracts, the lower of which are four to six inches long, erecto-patent and lanceolate, the upper much smaller and triangular-subulate. *Panicle* deltoid, a foot long, with few stout spreading branches which are flowerless at the base; bracts ovate-lanceolate, recurved. *Flowers* three-quarters of an inch long, on very short stout green pedicels that gradually pass into the swollen green base of the perianth. *Sepals* oblong, obtuse, green, furfuraceous; rather shorter than the broadly clawed petals, the blades of which are ochreous, broadly ovate, obtuse, spreading. *Filaments* united at the base with the petals into a rather membranous tube, broad, stout; anthers oblong. *Ovary* narrowly ovoid; stigmas very short. *Capsules* twice as long as the perianth, divided to the axis into three loculicidal carpels.—*J. D. H.*

Fig. 1, Whole plant *much reduced*; 2, leaf and, 3, panicle *of the natural size*; 4, flower; 5, the same with 2 sepals and a petal removed:—*all magnified.*



W. Fitch, del. et Lith.

Vincent Brooks, Day & Son, Imp

TAB. 6295.

TIGRIDIA LUTEA.

Native of Peru and Chili.

Nat. Ord. IRIDACEÆ.—Tribe TIGRIDIEÆ.

Genus TIGRIDIA, *Juss.* (*Baker in Journ. Linn. Soc.* vol. xvi. inedit.).

TIGRIDIA (BEATONIA) *lutea;* bulbo ovoideo, tunicis brunneis, foliis 3–4 superpositis sessilibus linearibus acutis glabris profunde plicatis, caule gracili tereti monocephalo, spathæ 2–4-floræ valvis lanceolatis exterioribus viridibus, interioribus pallidis membranaceis, pedicellis floriferis spathâ æquilongis, ovario oblongo, perianthii lutei fugacis segmentis unguibus latis diu imbricatis cupulam efformantibus fusco punctatis, laminis rotundis supra unguem flore expanso patulis, interioribus minoribus ad unguis apicem crystallino-foveolatis, filamentis in tubum cylindricum prorsus connatis, antheris ligulatis erecto-patentibus, styli ramis profunde bifurcatis ramulis falcatis apice stigmatosis.

T. lutea, *Link, Klotzsch, and Otto, Icon. Plant. Rar. Hort Reg. Bot. Berol.* p. 85, tab. 34; *Baker in Journ. Linn. Soc.* vol. xvi. inedit.

SISYRINCHIUM grandiflorum, *Cav. Diss.* tab. 192, fig. 2?

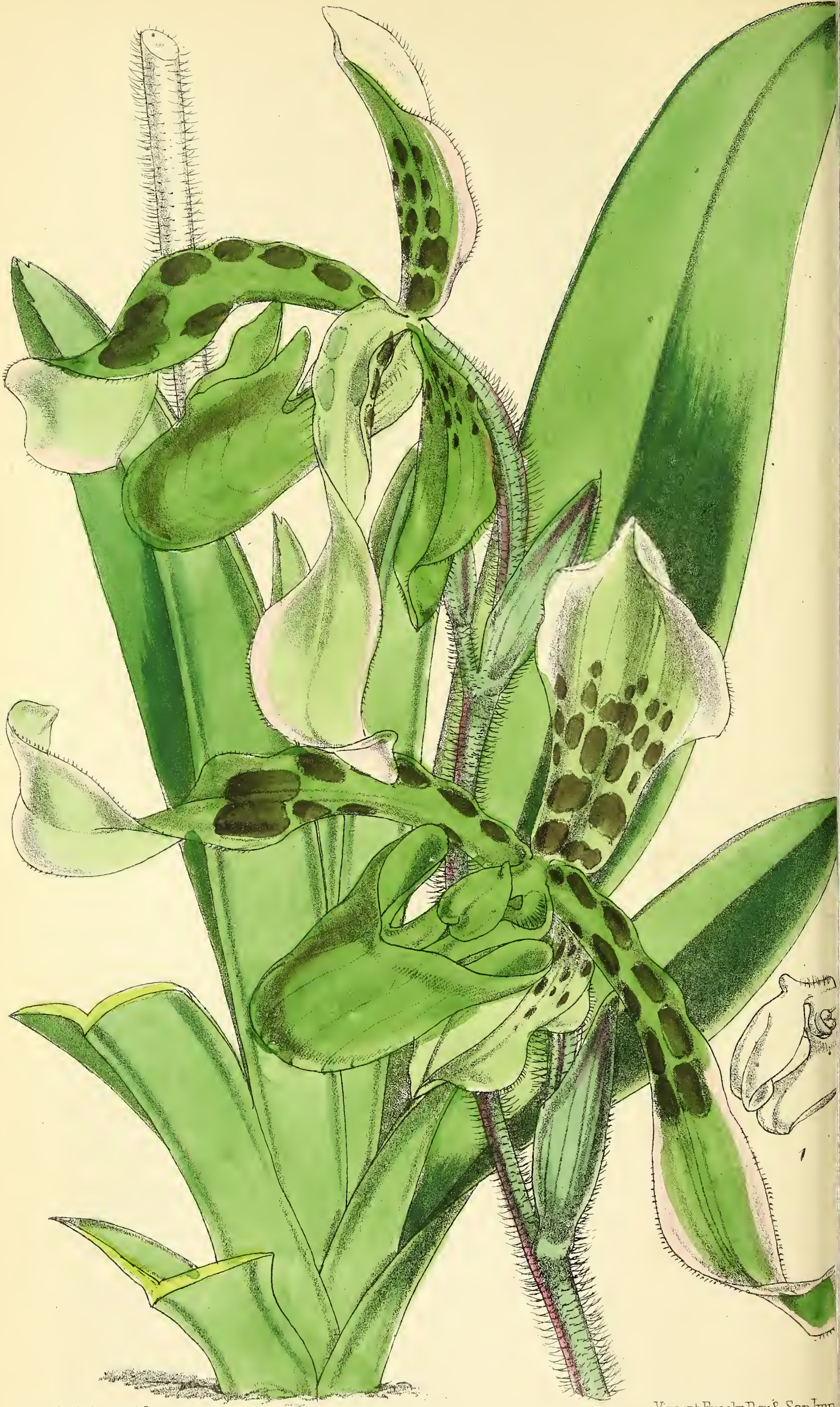
BEATONIA lutea, *Klatt in Linnæa*, vol. xxxi. p. 567; vol. xxxiv. p. 733.

This *Tigridia* is much inferior in decorative effect to the well-known *P. Pavonia*, and, as in all the other species of the genus, the flowers are very fugitive. Probably it is the plant figured by Cavanilles, in 1790, under the name of *Sisyrinchium grandiflorum*, but if so the drawing is a very poor one. I have seen a dried specimen in the British Museum, collected about the time by Pavon, in Peru. It was named and well figured by Link, Klotzsch, and Otto, from a specimen sent to the Berlin Botanic Garden, from the island of Chiloe, by Professor Philippi, in 1840. It is the only species of *Tigridia* that comes from that part of the world, all the other five that are known being Mexican. The present drawing was made from a plant that flowered with Mr. H. J. Elwes, at Cirencester, in the autumn of 1876.

MAY 1ST, 1877.

Descr. *Bulb* ovoid, with thick brown membranous tunics. *Stem* terete, about a foot long, bearing three or four distantly superposed leaves and a single terminal head of flowers. *Leaves* sessile, linear, acuminate, four to six inches long, a quarter to half an inch broad at the middle, moderately firm in texture, bright green, strongly plicate, glabrous. *Spathe* one and a half to two inches long, two- to four-flowered, the flowers opening in succession on different days; valves lanceolate, the two outer ones green, the inner ones pale and membranous. *Pedicels* as long as the spathe. *Ovary* oblong, one-quarter to one-third inch long. *Perianth* yellow, very fugitive, measuring an inch and a half across when expanded, the broad claws of the segments forming a permanent cup and dotted with brown, those of the inner three suddenly narrowed just above the base and furnished with a transverse glittering crystalline band at the throat of the claw; blade of the segments spreading from the top of the cup when the flower is expanded, roundish, with a minute cusp, the three inner much smaller than the three outer. *Filaments* united to the top in a cylindrical column as long as the cup formed by the claws of the perianth-segments; *anthers* ligulate, erecto-patent. *Style-arms* cut down nearly to the base into two hooked forks, which are stigmatose in a cushion at the very tip.—*J. G. Baker*.

Fig. 1, One of the outer segments of the perianth; fig. 2, one of the inner segments; fig. 3, pistil and stamens complete; fig. 4, column of stamens, with the anthers cut off so as to show the style-arms:—*all magnified.*



W Fitch, del et Lith.

Vincent Brooks Day & Son Imp

TAB. 6296.

CYPRIPEDIUM HAYNALDIANUM.

Native of the Philippine Islands.

Nat. Ord. ORCHIDEÆ.—Tribe CYPRIPEDIEÆ.
Genus CYPRIPEDIUM, *Linn.* (*Endl. Gen. Plant.* p. 220).

CYPRIPEDIUM *Haynaldianum;* foliis distichis lineari-oblongis carinatis obtusis apice 2-dentatis coriaceis concoloribus, scapo plurifloro stricto patentim villoso, bracteis oblongo-lanceolatis ellipticisve acutis villosis ovario subsessili villoso brevioribus, sepalo dorsali oblongo obtuso marginibus ciliolatis infra medium recurvis, dimidio inferiore virescente brunneo maculatis, superiore pallide roseo-albo, sepalis lateralibus in unum late ovatum labello suppositum et eo brevius connatis, petalis ligulatis patentissimis sepalo superiore duplo longioribus eoque concoloribus ultra medium dilatatis apicibus recurvis, labello virescente saccato ore biauriculato auriculis latis obtusis sinu triangulari, staminodio spathulato apice 2-lobo.

C. Haynaldianum, *Reichb. f. Xen. Orchid.* vol. ii. p. 222, *et in Gard. Chron. N.S.* vol. vii. p. 272 (1877).

A very near ally of *C. Lowei*, Lindl., also a native of the Philippines; so near indeed that Reichenbach observes that a casual observer might confuse the two, but after a careful examination of thirty-five flowers of that plant and five of this, he regards them as distinct, summing up the differences in *C. Lowei* as follows:—Upper sepal yellowish-green, with purplish lines and dots on the inner base; lower sepal (combined sepals) narrower and longer, yellow-green; lip with less prominent auricles, and a toothed keel in the sinus; stigma round and bent. These distinctive characters are, it must be confessed, but slight, and would seem to indicate a difference of race rather than of what are usually held to constitute a species. It is named after his Excellency Dr. Ludwig Haynald, archbishop of Kaloesa, in Hungary, who Dr. Reichenbach justly commemorates as a zealous botanist, and an active promoter of science and art, and whose name will ever be most honourably connected with the development of Hungary.

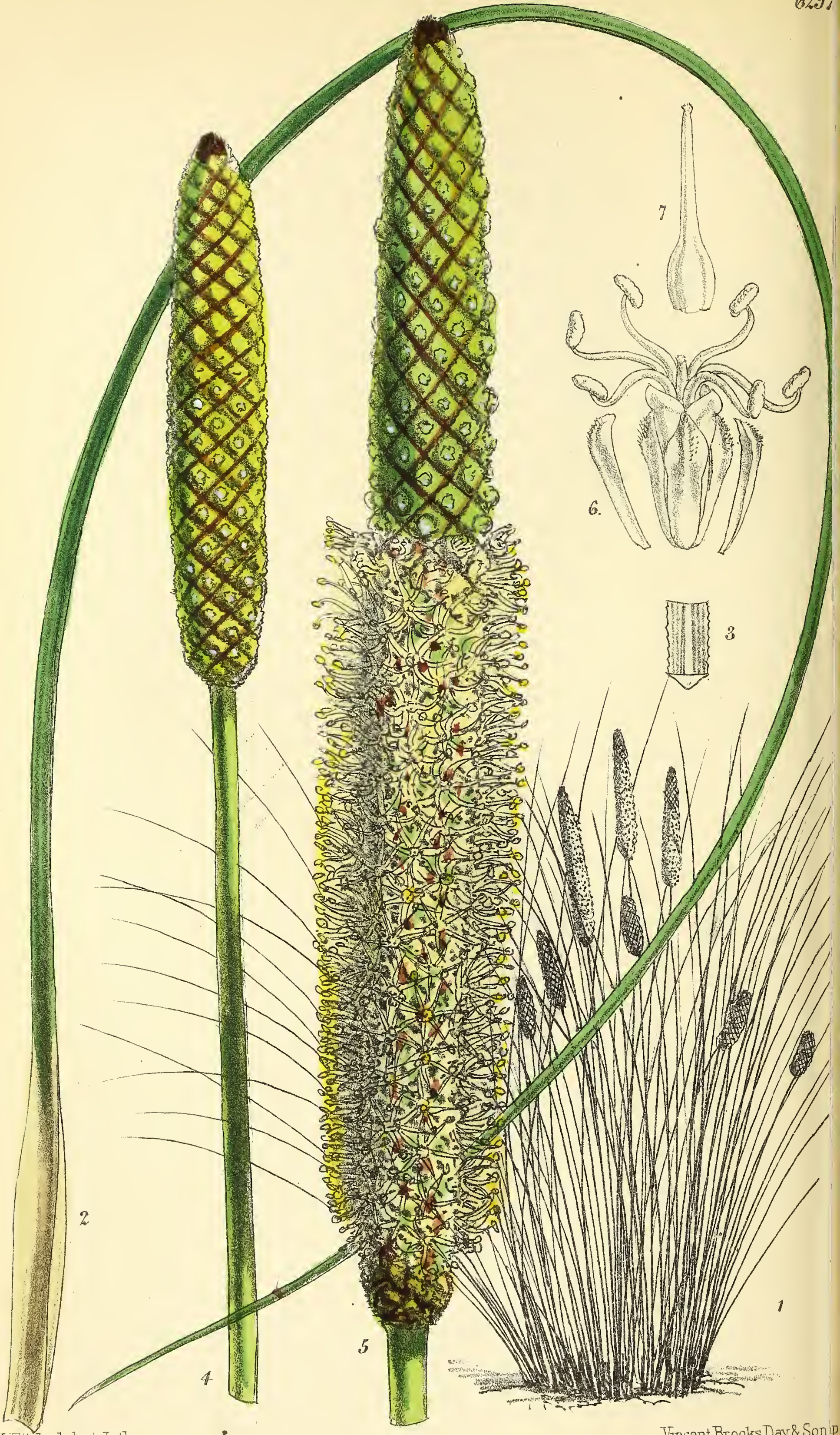
I am indebted to Messrs. Veitch for the opportunity of figuring this plant, which flowered at Chelsea in February of the present year.

MAY 1ST, 1877.

Descr. *Leaves* dictichous, six to ten inches long, linear-oblong, about one and a half inches broad, suberect, keeled, obtuse and 2-toothed at the tip, dark green, very coriaceous. *Scape* solitary, one to one and a half feet high, strict, two- or more-flowered, clothed with soft long spreading hairs, as are the bracts and ovary; bracts one to one and a quarter inch long, elliptic or ovate-oblong, shorter than the ovary. *Flower* six to seven inches across the petals, greenish white, except the lower half of the ciliated upper sepal and petals, which are blotched with dark brown, and their upper halves are faintly rosy and white. *Upper sepal* suberect, oblong, obtuse, lower half with recurved margins, upper almost hooded. *Lower sepal* (of two combined) broadly ovate, obtuse, much shorter than the lip. *Petals* almost twice as long as the upper sepal, linear, suddenly twisted beyond the middle with a recurved apex. *Lip* green, saccate, with a rounded base; mouth with two broad obtuse elongated lips, and a broadly triangular sinus between them, at the base of which is a tooth. *Staminode* 2-lobed, green.—*J. D. H.*

Fig. 1, Staminode and stigma, *enlarged.*

6297



W. Fitch del, et Lith.

Vincent Brooks Day & Son

TAB. 6297.

XANTHORRHŒA MINOR.

Native of South-Western Australia and Tasmania.

Nat. Ord. JUNCEÆ.—Tribe XEROTIDEÆ.

Genus XANTHORRHŒA, *Smith*; (*Endl. Gen. Plant.* p. 152).

XANTHORRHŒA *minor*; pumila, acaulis, dense cæspitosa, foliis suberectis e basi paullo dilatato filiformibus triquetris superne lente convexis v. concavis subtus acute carinatis marginibus tenuissime erosis, scapis cum spicis foliis brevioribus, spica brevi cylindracea, bracteis anguste cymbiformibus dorso subapice pubescentibus, sepalis chartaceis anguste obovato-oblongis subacutis dorso vix carinatis sub apice, puberulis, petalis paullo majoribus planiusculis membranaceis glabris.

X. minor, *Br. Prodr.* 288; *Kunth, Enum. Pl.* vol. iv. p. 649; *Hook. f. Fl. Tasman.* vol. ii. p. 59. F. Muell. *Fragment. Phytog.* vol. iv. p. 112. *Benth. Fl. Austral.* vol. vii. *ined.*

This is the second species of this remarkable genus that has flowered at Kew, where three or four others are in cultivation. In the structure of the flower it closely resembles *X. quadrangulata*, figured at plate 6075, but differs wholly in habit, and in the leaves, which in that species are square on a transverse section. It is not an uncommon plant in the moist turfy and sandy moors of South Australia, Victoria, and Tasmania, where it covers extensive tracts of land.

I am not at all sure but that two dwarf species of *Xanthorrhœa* may be confounded under the one name of *X. minor*, and if so I am doubtful to which Brown's name should be applied; one, that here figured, has a nearly flat or concave upper surface to the very slender suberect leaves; the other, a much more robust plant, with longer stouter scapes, has larger and more spreading leaves, and more convex upper surfaces than those of the first. We have native specimens (gathered by myself in company with Mr. Gunn) on Grass Tree Hill, near Hobarton, and others from Victoria; whilst the much larger form abounds near York Town, Tasmania, where, according to Gunn, it covers hundreds of acres, to the exclusion of almost every other plant. In December, 1841, Mr. Gunn describes the country as being white with it, one plant pro-

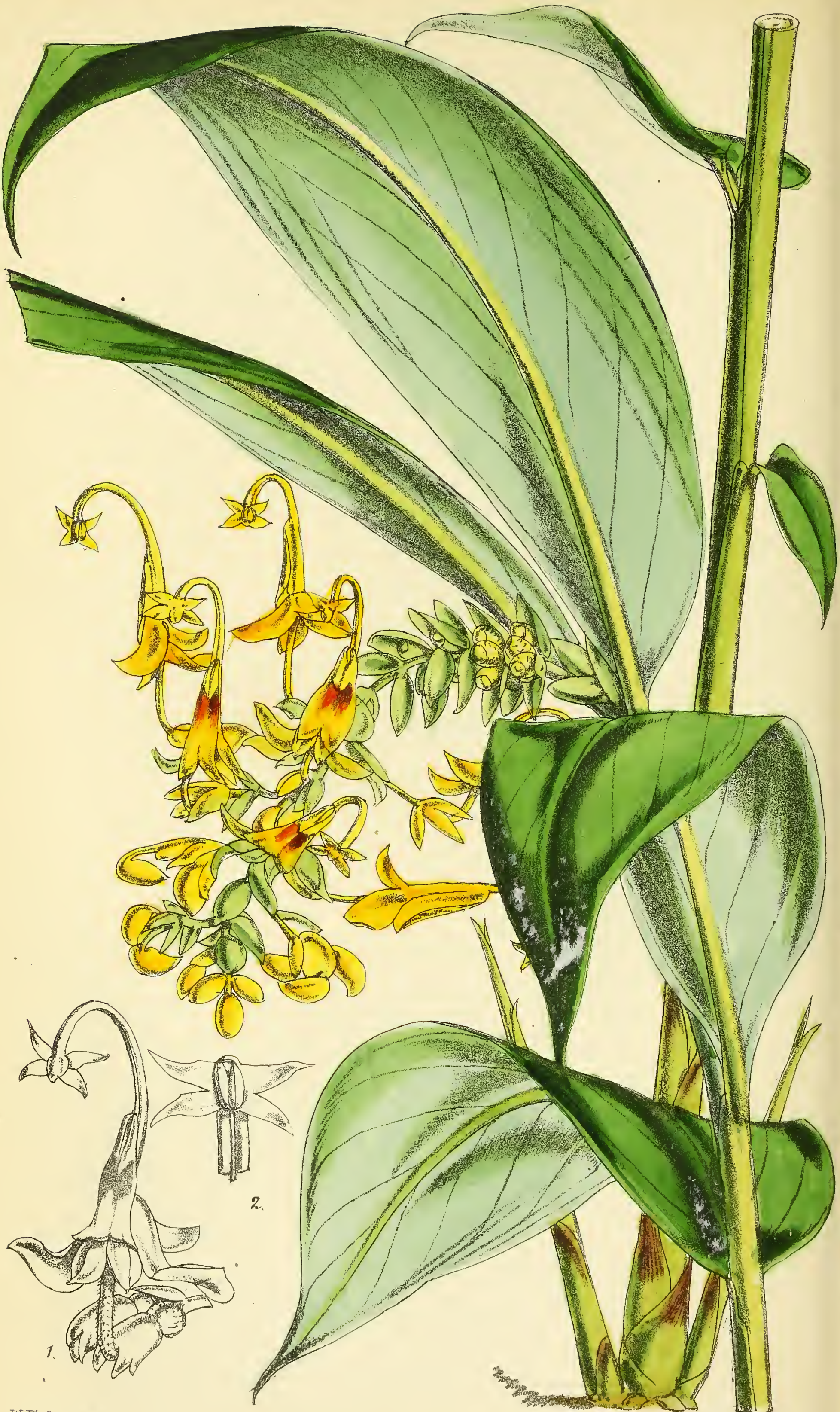
MAY 1ST, 1877.

ducing 36 flowering scapes, whereas in the following year he could get only 6 or 8 specimens in flower on the same spot. From this he assumes that the *Xanthorrhœas* do not flower every year. The copiously flowering one may be that alluded to by Mueller (Fragmenta, iv. 112), as possibly distinguishable from *X. minor*, and if so to be called *X. polystachya*.

X. minor was sent to Kew some years ago by Baron von Müller from the rich collections of the Melbourne Botanic Gardens, of which he was the director, and it flowered in February of this year; its flowering season in Australia being December and January.

Descr. Stemless, densely tufted, glabrous. *Leaves* 8 to 10 inches long, suberect, very slender, filiform from a slightly dilated base, triangular, flat, slightly concave or convex above, acutely keeled beneath, margins minutely erose. *Spike* very variable in length and robustness; in the Kew specimen always shorter than the leaves; scape slender; bracts narrowly boat-shaped, equalling the perianth. *Perianth* green, with brown pubescent tips to the sepals, which are hard, linear, dilated upwards, obtuse, very concave. *Petals* longer, more membranous, flatter, with broader rather spreading tips. *Stamens* horizontally bent from beyond the middle. *Ovary* ovoid narrowed into the straight style.—*J. D. H.*

Fig. 1, *Reduced* view of tuft of plants; 2, leaf; 3, transverse section of ditto; 4, scape and spike; 5, spike with expanded flowers; 6, bracts and flowers; 7, ovary unexpanded; all but 2, 4, and 5 *much enlarged.*



W Fitch del et Lith

Vincent Brooks Day & Son Lith

Tab. 6298.

GLOBBA Schomburgkii.

Native of Siam.

Nat. Ord. Zingiberaceæ.—Tribe Globbæ.

Genus Globba, *Linn.;* (*Endl. Gen. Plant,* p. 222).

Globba *Schomburgkii;* glaberrima, foliis elliptico-lanceolatis caudato-acuminatis, panicula 2–4-unciali cernua, dimidio inferiori bracteis navicularibus obtusis imbricatis bulbilliferis tecta, superiore florifera bracteis consimilibus persistentibus, ramulis paucis breviusculis v. elongatis 2-∞ floris, floribus 1½-pollicaribus aureis labello basi aurantiaco, ovario globoso, calyce brevi campanulato 3-fido, corollæ tubo puberulo, limbi laciniis exterioribus ovatis acuminatis interioribus duplo majoribus falcatis, labello apice truncato angulis divaricatis acutis, antheræ alis bipartitis segmentis triangularibus acuminatis.

Of the curious genus *Globba*, which is a common native of damp woods in Tropical Asia and its islands, few species have been cultivated in this country, and not a few undescribed ones are contained in herbaria. One alone has been figured in this work, *G. sessiliflora*, Sims (t. 1428), whereas thirteen are described in Horaninov's 'Prodromus Monographiæ Scitaminearum,' published in 1862. All are very similar in general habit, and many are remarkable for bearing on the flowering panicle solid ovaries without perianths cells or ovules, which fall off and produce new plants. The structure of the flower is very singular, closely resembling that of *Mantissa* (tab. 1320), which differs from *Globba* in the inflorescence being borne on a separate scape distinct from the leaves.

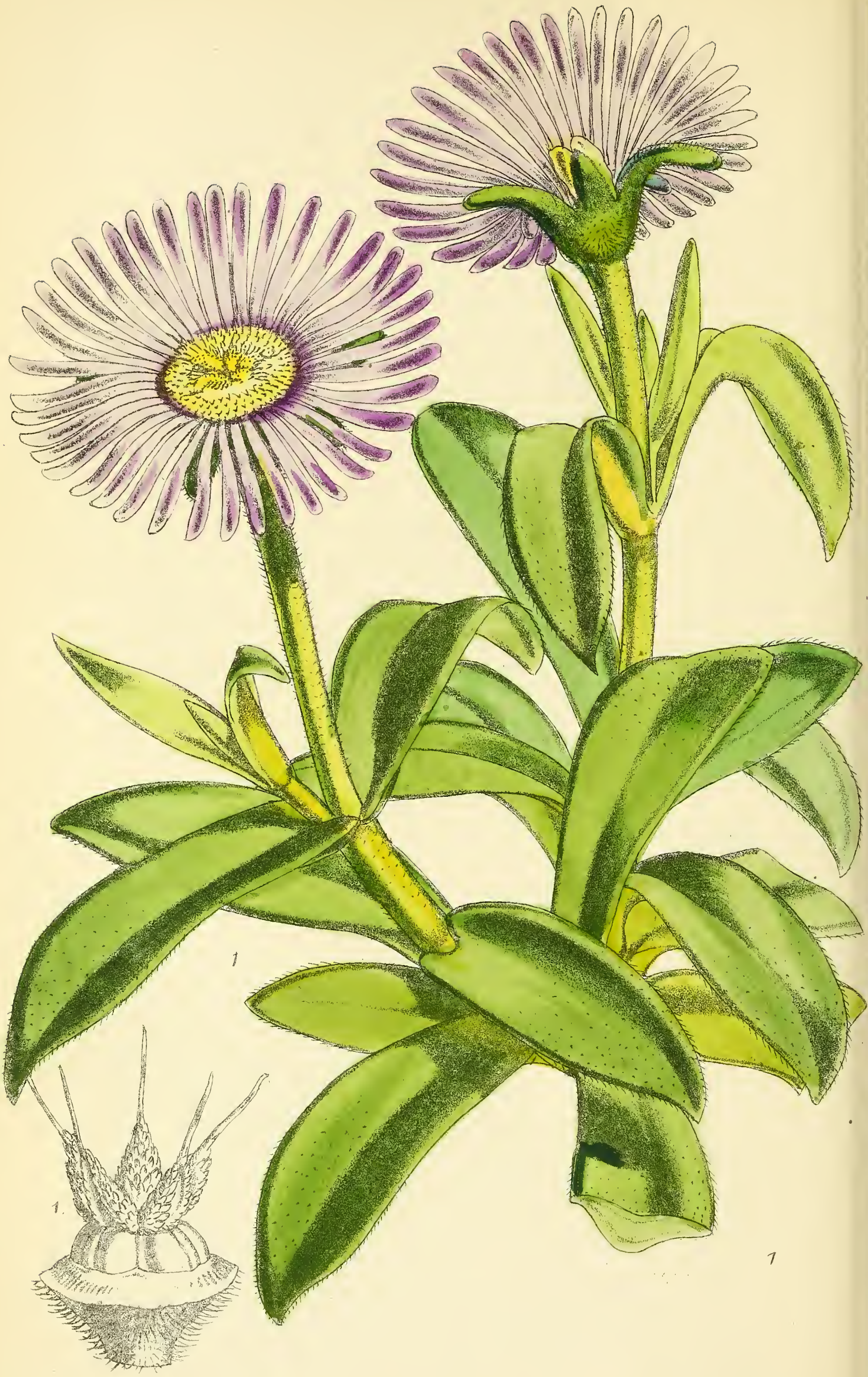
G. Schomburgkii was discovered by the late Sir Robert Schomburgk when H.B.M.'s Consul at Siam, who sent roots to Kew in 1864, where it has flowered repeatedly in August. It has been distributed as *G. bulbifera*, Roxb., from which and from all others it differs in the curious panicles.

Descr. Quite glabrous. *Stems* tufted, six to twelve inches high, with three to five leaves. *Leaves* six to nine inches long by one to one and a half broad, elliptic-ovate or lanceolate, with slender acuminate tips, contracted into

May 1st, 1877.

a short petiole above the vagina. *Panicle* two to four inches long, drooping, the lower half unbranched and clothed with imbricating bracts, each bearing in its axil a globose tubercled bulbil (which is an imperfect ovary without perianth); the remainder of the panicle is more or less branched, and bears perfect flowers; bracts one quarter to half an inch long, oblong, obtuse, very concave, green, persistent, imbricating, then spreading; branches slender, sometimes short and two-flowered, at others two inches long, very slender, spreading, many-flowered. *Flowers* one and a half inch long, golden yellow with a bright orange-red base to the lip. *Ovary* globose, tubercled. *Calyx* campanulate, three-toothed. *Corolla-tube* puberulous; three outer segments ovate, acuminate, deflexed; two inner twice as long, deflexed then spreading, falcate, acuminate. *Lip* narrowly wedge-shaped, with a broad retuse truncate end, the angles of which are acute and divergent. *Anthers* with a two-partite wing on each side, the segments triangular-subulate.—*J. D. H.*

Fig. 1, Flower; 2, anther:—*both enlarged.*



W. Fitch del. et Lith.

Vincent Brooks Day & Son Lith.

Tab. 6299.

MESEMBRYANTHEMUM Sutherlandii.

Native of Natal.

Nat. Ord. Ficoideæ.—Tribe Mesembryeæ.

Genus Mesembryanthemum, *Linn.* (*Benth. et Hook. f. Gen. Plant.* vol. i. p. 853.)

Mesembryanthemum *Sutherlandii;* herbaceum, perenne, ramosum, robustum, ramis annuis adscendentibus cylindraceis hispidulis, foliis oppositis patenti-recurvis basi subconnatis, elongato lingulatis minute papulosis supra medium subdilatatis acutis superne scaberulis marginibus subrecurvis ciliolatis crasse carnosis supra paulo-concavis subtus costam rotundatam versus tumidis, scapo 5-floro 1–2-pollicari robusto hispidulo, flore 2–2½ poll. diamet. calyce tereti tubo turbinato, sepalis inæqualibus subcylindraceis patenti-recurvis obtusis scaberulis 2 brevioribus membranaceo-marginatis, petalis roseo-pupureis anguste linearibus obtusis, staminibus flavis multiseriatis exterioribus anantheris, stigmatibus 5 ovato-lanceolatis acuminatis grosse papillosis seta terminatis.

It is not without hesitation that I propose a new South African species of the immense genus *Mesembryanthemum*, of which some 290 species are already contained in Harvey and Sonders' 'Flora Capensis.' I have, however, searched in vain amongst those described in that work for any which accords with this, which moreover comes from a district beyond the range of the species hitherto discovered. Of the sixty-five sections under which the S. African species are classified, there is none with which it quite agrees, though it is probably referable to one of those belonging to the great group of "Papulosæ," the surfaces of whose leaves and branches are covered with minute glistening cellular papillæ. It may, perhaps, be safely referred to a reformed section, "Platyphylla," of Haworth, from which it differs in the root being perennial instead of annual or biennial.

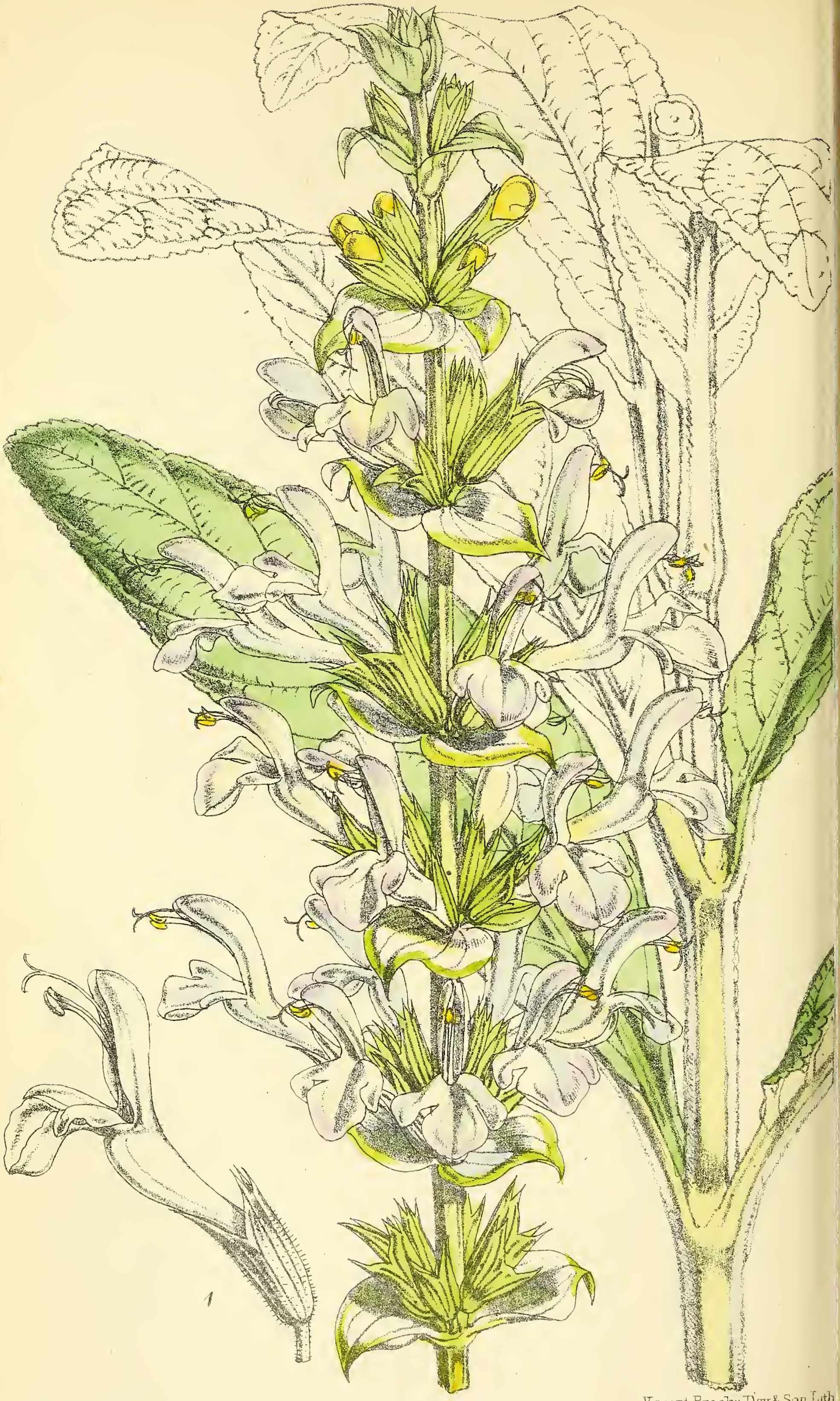
M. Sutherlandii was sent to the Royal Gardens by Dr. Sutherland, Surveyor-General of the colony of Natal, in 1870, and has flowered annually in the summer months since 1872.

Descr. Minutely papulose and clothed (except the broad tumid middle part of the under surface of the leaves) with short rigid hairs. *Root* perennial. *Stem* branching from the base; branches annual, diffuse or suberect, cylindric, three to six inches high, green. *Leaves* opposite, decussate, two to three inches long, spreading and recurved, slightly connate by their sessile bases, oblanceolate or linear-oblong and dilated beyond the middle, acute, deep green, upper surface slightly convex, channelled towards the base, under tumid and rounded towards the keel; margins acute, slightly recurved. *Peduncles* subterminal, three to four inches long, stout, terete, green, gradually dilated into the almost hemispheric bristly terete calyx-tube. *Calyx-lobes* 5, unequal, spreading and recurved, cylindric, obtuse, papillose and scabrid, green, two smaller than the others and having broad membranous margins. *Corolla* two to two and a half inches in diameter. *Petals* very numerous, pale bright-purple, linear, very narrow, obtuse. *Stamens* very numerous in many series, the outer without anthers. *Carpels* 5, globose; stigmas large, ovoid, acuminate, terminating in hair-like points, densely clothed with large papillæ on the inner surface and margins.

J. D. H.

Fig. 1, Apex of peduncle, carpels, and stigma:—*enlarged.*

6300.



W. Fitch del et Lith

Vincent Brooks Day & Son Lith

TAB. 6300.

SALVIA SCHIMPERI.

Native of Abyssinia.

Nat. Ord. LABIATÆ.—Tribe MONARDEÆ.

Genus SALVIA, *L.* (*Benth. et Hook. f. Gen. Plant.* vol. ii. p. 1194).

SALVIA (Æthiopis) *Schimperi;* araneoso-lanata, caule robusto simplici, foliis ample ovato-lanceolatis acutis crenulatis basi rotundatis v. subacutis rugosis utrinque albo-lanatis, panicula virgato-ramosa ramis erecto-patentibus glanduloso-pubescentibus, foliis floralibus sessilibus late ovato-rotundatis concavis acuminato-spinescentibus glandulosis ciliatis, calycibus tubuloso-campanulatis glandulosis nervis hirtis, labio superiore 3-spinuloso inferiore bifido dentibus aristatis, corollæ tubo calyce duplo longiore sub fauce inflato, labio superiore compresso oblongo obtuso, inferioris lobis lateralibus parvis oblongis-intermedio sub-orbiculari, connectivis postice deflexis abrupte dilatatis, nuculis fere orbiculatis eleganter venosis facie obtuse carinatis.

S. Schimperi, *Benth. in DC. Prodr.* vol. xii. p. 283.

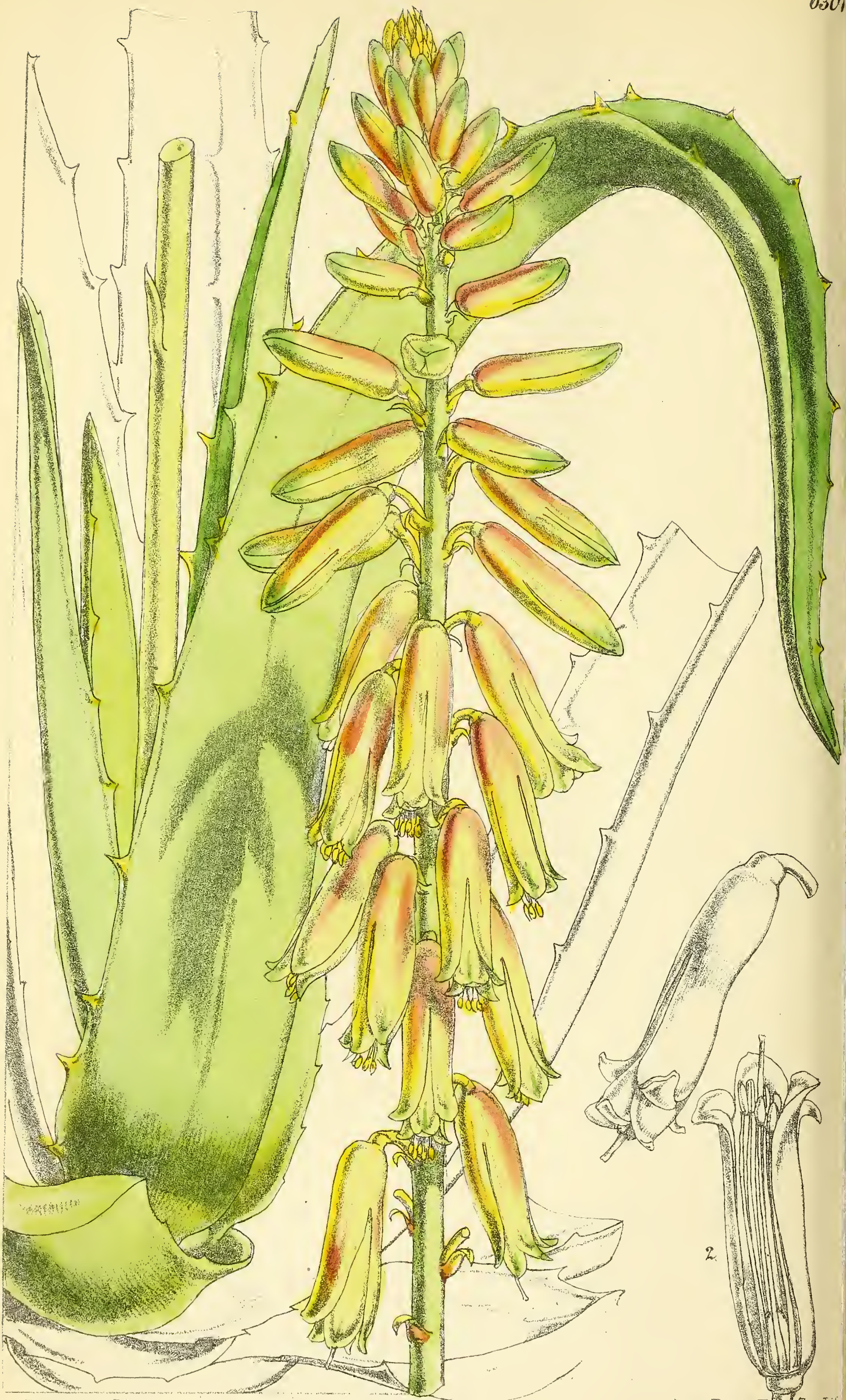
S. hypoleuca, *Hochst. MSS.* (*non Benth.*) *in Schimp. Herb. It. Abyss.* No 1916.

Abyssinia has not added many attractive novelties to European gardens, and indeed its vegetation seems to afford far less of interest than any other mountain regions in its latitude. Its low tropical forests present few or no *Orchids*, *Bromeliaceæ*, and other such stove favourites, whilst its dry rocky mountains have to be ascended to a very great height before even a temperate vegetation is met with, and there seems to be no Alpine flora worthy of the name. The subject of the present plate is a robust Sage, suited for the herbaceous ground, belonging to an Oriental group of the genus, and closely allied to the fine *S. asperata* of Kashmir (tab. nostr. 4884); it was discovered by Schimper in the mountains near Axum, at an elevation of seven to eight thousand feet above the sea, flowering in October, and was introduced by Mr. Bull, who sent the specimen here figured to Kew in July, 1875.

DESCR. *Root* woody, as thick as the thumb. *Stem* two to three feet high, very stout, simple, obtusely four-angled, woolly or glabrate. *Leaves* few, petioled, five to seven inches long, ovate-lanceolate, acuminate, crenulate, base rounded, rarely acute, rugulose, covered with cobwebby wool, especially beneath, where they are snow white; petiole one to two inches long, cottony. *Panicle* very large, with stiff erecto-patent branches, glandular-pubescent, as are the bracts and calyces. *Bracts* orbicular-ovate, with acuminate spinescent tips, membranous, ciliate, white with green borders. *Flowers* sessile, nearly two inches long. *Calyx* green, tubular-campanulate, ribs almost hispid; lips short, upper with three minute spinous teeth, lower bifid, the teeth aristate. *Corolla* white; tube twice as long as the calyx, slender, curved, inflated below the lower lip; upper lip oblong, compressed, obtuse, puberulous, lower small; lateral lobes small, recurved; mid-lobe nearly orbicular, notched. *Connectives* produced downward and ending abruptly in a broad plate. *Nucules* nearly orbicular, compressed from back to front, obtusely keeled in front, smooth, pale, elegantly veined—*J. D. H.*

Fig. 1, Flower—*enlarged.*

6301



W. Fitch del et Lith.

Vincent Brooks Day & Son Lith

Tab. 6301.

ALOE CHINENSIS.

Native country unknown.

Nat. Ord. Liliaceæ.—Tribe Aloineæ.

Genus Aloe, *Linn.* (*Kunth, Enum.* vol. iv. p. 492).

Aloe *chinensis*; acaulis vel breviter caulescens, caule simplici, foliis 15–20 dense rosulatis lanceolatis acuminatis semi-pedalibus vel pedalibus viridibus canaliculatis utrinque maculis albidis parvis oblongis paucis vel numerosis decoratis dentibus pallidis deltoideis marginatis, scapo simplici sesquipedali bracteis paucis deltoideis instructo, racemo sublaxo, pedicellis brevibus inferioribus cernuis, bracteolis minutis lanceolatis, perianthii lutei rubro tincti tubo brevi campanulato, segmentis superne viridi vittatis, staminibus omnibus inclusis, stylo demum leviter exserto.

A. barbadensis, *var.* chinensis, *Haworth Suppl. Pl. Succ.* p. 45; *Kunth, Enum.* vol. v. p. 522.

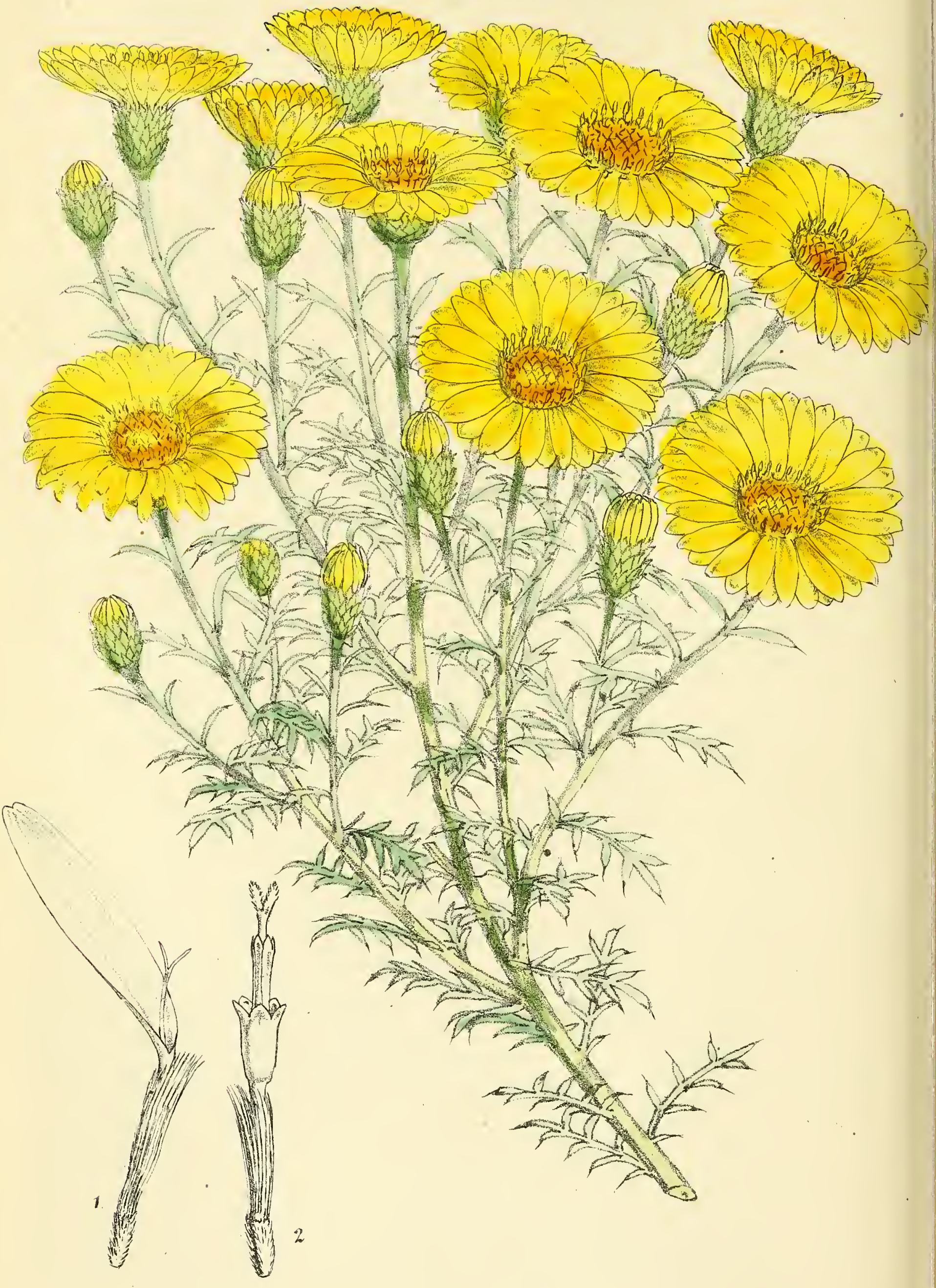
Trusting to a large extent to garden tradition we venture to identify the present plant with an *Aloe* which was introduced from China, by Mr. William Anderson, in 1817, which was briefly described by Haworth, from flowerless specimens in his 'Supplementum Plantarum Succulentarum' of 1819, as a probable variety of *A. barbadensis*, and is mentioned in Salm Dyck's monograph and Kunth's Enumeratio, by name only. Our present plant is clearly quite distinct specifically from *A. barbadensis*. The leaves are never more than half the length of those of that species, and are spotted more or less copiously both on back and face after the fashion of *A. abyssinica;* the raceme is very much laxer and the stamens are very much shorter. We have had it for a long time in the Kew collection, and have received it from other gardens, but never, so far as I know, with any definite information as to its native country. The drawing was made from a plant that flowered at Kew this spring. The flowers have a strong and decidedly unpleasant scent. Its affinity is with *A. barbadensis*, *abyssinica* and *consobrina*.

Descr. *Leaves* fifteen to twenty, extending on the stem over

june 1st, 1877.

a space of three or four inches in a sessile or shortly stalked rosette, which in the mature plant is multifarious, but in the young plant sometimes subdistichous, lanceolate, acuminate, varying from half a foot to a foot long, one and a half or two inches broad at the base, narrowed gradually to the point, flat at the base, where they are about about half an inch thick, deeply channelled in the upper part, a sixth of an inch thick in the centre, pale green, irregularly marked on both surfaces with small oblong whitish blotches, which become less numerous in older specimens, the edge margined with copious spreading pale green deltoid prickles a twelfth or an eighth of an inch long. *Scape* simple, a foot and a half long, furnished with a few distant small deltoid bracts. *Raceme* simple, four to eight inches long, much laxer than in *A. barbadensis*, about two inches in diameter when expanded; pedicels a sixth to a quarter of an inch long, the lower ones cernuous; bracteoles lanceolate, as long as the pedicels. *Perianth* cylindrical, bright yellow, slightly tinged with red, an inch long; tube campanulate, an eighth of an inch long; segments lanceolate, keeled with green towards the tip. *Stamens* all included; filaments bright yellow; anthers oblong, small. *Style* finally just exserted.—*J. G. Baker.*

Fig. 1, A single flower; fig. 2, the same, cut open:—*both magnified.*



W.H. Fitch del et Lith

Vincent Brooks Day & Son Imp

TAB. 6302.

HAPLOPAPPUS SPINULOSUS.

Native of the Rocky Mountains.

Nat. Ord. COMPOSITÆ.—Tribe ASTEROIDEÆ.

Genus HAPLOPAPPUS, *Cass.* (*Benth. and Hook. f. Gen. Pl.* vol. ii. p. 253).

HAPLOPAPPUS (Blepharodon) *spinulosus*; fruticulus cano-tomentosus, corymboso-ramosus, ramis foliosis, foliis brevibus 1–2-pinnatifidis segmentis brevibus recurvis acuminatis aristulatis, capitulis terminalibus solitariis v. subcorymbosis pedunculatis, involucri hemispherici squamis numerosis parvis arcte imbricatis subulato-lanceolatis mucronatis canis, radiis numerosis patentibus obtusis aureis, disci corollis breviter 5-dentatis, pappi setis rufis, acheniis oblongo-obovatis compressis sericeis.

APLOPAPPUS? spinulosus, *DC. Prod.* v. p. 347.

A. spinulosus, *Torr. and Gr. Fl. N. Am.* vol. ii. p. 240.

AMELLUS? spinulosus, *Pursh. Fl. N. Am.* vol. ii. p. 564.; *Torr. in Ann. Lyc. New York,* vol. ii. p. 213.

STARKEA? pinnata, *Nutt. Gen.* vol. ii. p. 169.

DIPLOPAPPUS pinnatifidus, *Hook. Fl. Bor. Am.* vol. ii. p. 22.

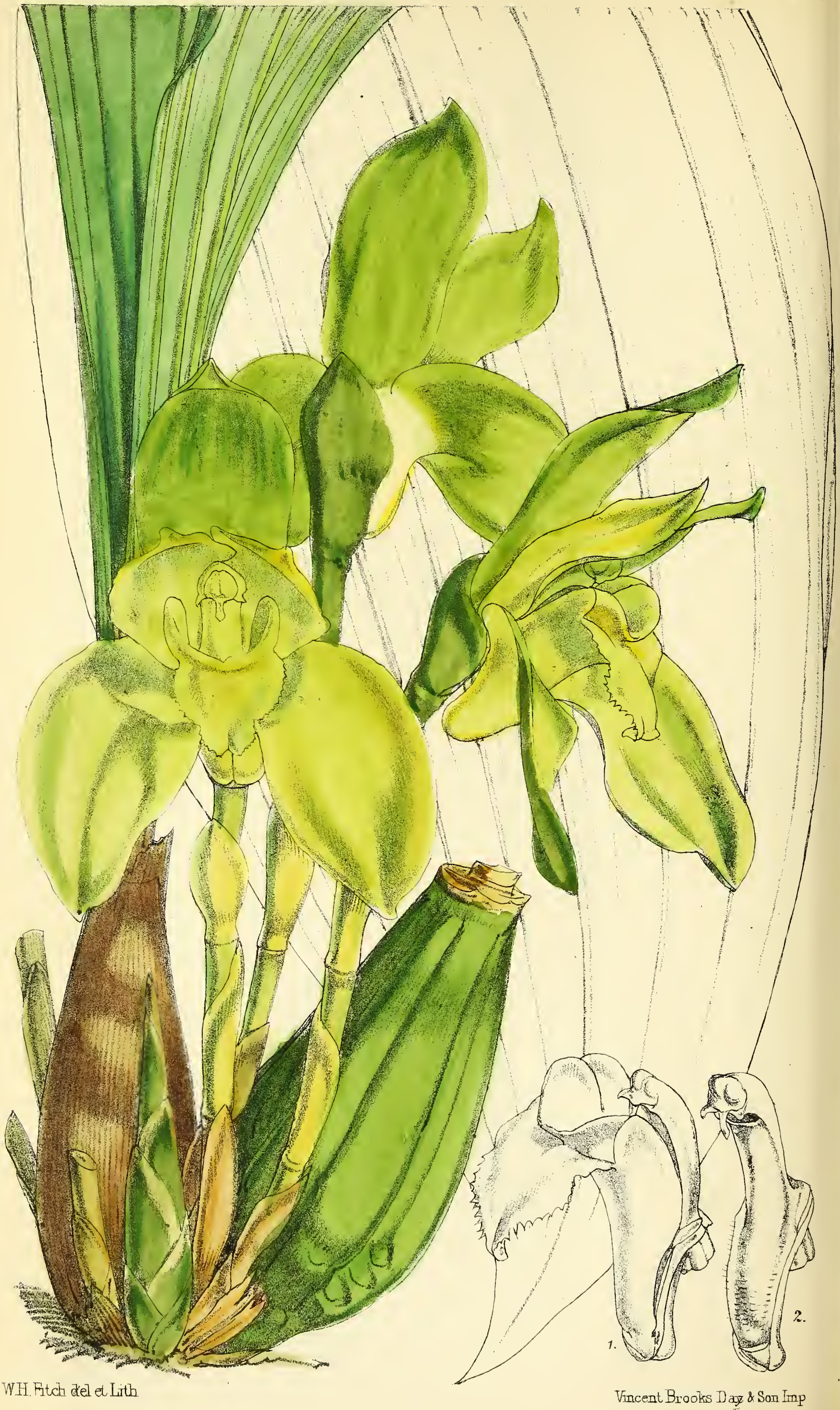
DIETERIA spinulosa, *Nutt. in Trans. Amer. Phil. Soc.* (*N. Ser.*), vol. viii. p. 301.

A widely distributed native of the prairies bordering the Rocky Mountains, from the boundary of the British possessions as far South as New Mexico, apparently common about the source of the Saskathchewan, Platte, and Colorado rivers. It forms a low corymbosely branched bush, one to two feet high, with innumerable branches from the root, clothed with small leaves, and bearing masses of flower-heads. One specimen from Mr. Veitch's garden, about ten inches in diameter, bears nearly a hundred golden heads, an inch in diameter, and I cannot doubt but that they will prove a most ornamental hardy garden plant when fully established, preferring, no doubt, a rather dry soil and climate, and flowering, like many other *Compositæ*, late in the year. The specimen here figured was raised by Messrs. Veitch, who introduced it; it flowered with them in August, 1874.

JUNE 1ST, 1877.

Descr. A low bushy shrub, one to two feet high, with numerous ascending corymbosely arranged branches springing from a woolly rootstock, covered with soft rather appressed woolly down. *Leaves* very uniform throughout the plant, about one inch long, suberect or recurved, once or twice pinnatifid; lobes spreading and recurved, linear-subulate, aristulate, nerveless. *Head* one inch in diameter, peduncled, solitary or rarely three to four together in a lax corymb; peduncle naked. *Involucre* hemispherical, one-third of an inch in diameter, green; scales numerous, imbricate, appressed, linear-subulate, aristulate, coriaceous. *Receptacle* alveolate. *Ray-flowers* twenty to thirty, spreading horizontally, close-set, corolla-tube slender; limb narrowly linear-oblong, notched. *Disk-flowers* tubular, with a campanulate five-toothed limb. *Style-arm* of ray slender, truncate; of the disk oblong, obtuse, papillose. *Achenes* between ovoid and turbinate, silky, flattened; pappus bristles unequal, more or less rufous, shining.—*J. D. H.*

Fig. 1, Ray-, and 2, disk-flowers:—*enlarged.*



W.H. Fitch del et Lith

Vincent Brooks Day & Son Imp

Tab. 6303.

LYCASTE Linguella.

Native of Peru ?

Nat. Ord. Orchideæ.—Tribe Vandeæ.

Genus Lycaste, *Lindl.* (*Bot. Reg.* 1843, *Misc.* p. 14).

Lycaste *Linguella;* pseudobulbis lagenæformibus sulcatis compressis, foliis membranaceis elongato-lanceolatis acuminatis plicatis, scapis robustis, spathis obtusis, bractea coriacea obovata cucullata obtusiuscula ovarium superante, floribus flavo-virescentibus labello pallidiore, sepalo dorsali obovato-oblongo obtuse apiculato, lateralibus majoribus deflexo-curvatis subacutis, petalis late obovatis obtuse apiculatis, mento in cornu obtusum producto, labelli dimidio basilari crasso valde concavo lobis lateralibus angustis disco intra lobos in callum semicircularem protrusum linguæformi truncato labello æquilato producto, lobo intermedio callo supposito linguæformi recurvo late ovato obtuso eroso, columnæ basi puberulo.

L. Linguella, *Reichb. f. in Gard. Chron. June* 1871, *p.* 738.

This fine *Lycaste* is remarkable for the structure of the lip, which, as indeed is the case with so many orchids, is difficult to describe. The body of this organ forms a coriaceous semicylindric tube, with the narrow lateral lobes appressed to its sides, whilst the front part is protruded as a truncate fleshy spout, and the mid-lobe, which arises on both sides from the base of the lateral lobes, is for the rest of its breadth attached to the back of the gutter, from which it appears to hang as a broad erose tongue. That this is after all only a modification of the prevalent character of the lip of *Lycaste* is obvious on comparing that of *L. Linguella* with any other figured in this work. In *L. lasioglossa* (Tab. 6251), the gutter is reduced to a tongue-shaped callus concealed in the concavity of lip. In *L. Barringtoniæ* (Tab. 5706), *L. fulvescens* (Tab. 4193), and *L. Skinneri* (Tab. 4445), it forms a similar but larger tongue, which approaches that of *L. Linguella* in being concave and very fleshy; whilst in *L. gigantea* (Tab. 5616) the tongue extends across the disk of the lip almost to the angles of the lateral lobes. In none of these, however, does it protrude as in the present species.

L. Linguella is, according to Reichenbach, supposed to

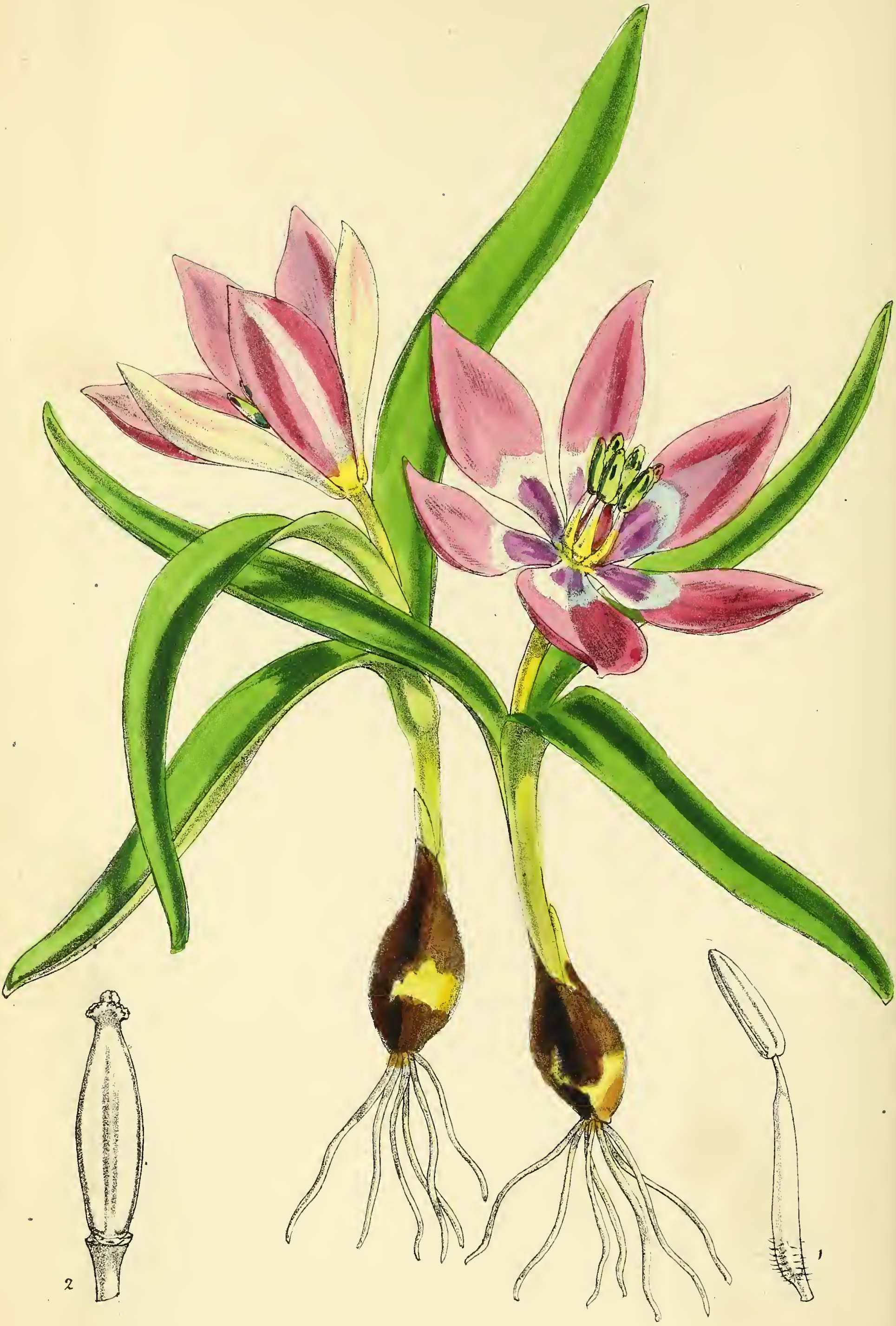
June 1st, 1877.

be a native of Peru. It was imported by Messrs. Veitch, from whom it was received by the Royal Gardens, where it flowered in January, 1872. It was described in 1871 by Reichenbach, who states that it has a close affinity with *L. ciliata* and *L. lasipes.*

DESCR. *Pseudobulbs* three inches long, narrowly ovoid or flagon-shaped, deeply grooved, compressed. *Leaves* twelve to fourteen inches long by three to four broad, lanceolate, acuminate, membranous, plaited. *Scapes* three to four inches long, strict, erect, with several obovate-oblong obtuse concave coriaceous erect green sheaths, the upper larger, and lower an inch long. *Bract* suberect, very coriaceous, dark green, hooded, subacute, longer than the ovary. *Flowers* upwards of three inches from the tip of the upper to that of either lateral sepal, pale yellowish green, with a nearly white lip. *Dorsal sepal* obovate-oblong, nearly one inch diameter, obtusely apiculate, as are the lateral sepals, which are larger, curved, and deflexed. *Petals* smaller than the sepals, broadly obovate, rather concave. *Lip* much smaller than the sepals; lateral lobes very narrow; terminal broadly ovate, obtuse, recurved, erose. *Column* not winged, pubescent towards the base, where it is prolonged into the almost spurred obtuse mentum. *Anther-case* three-lobed in front, the middle prolonged into a little tail.—*J. D. H.*

Fig. 1, Column and lip; 2, column:—*both enlarged.*

6304



W.H.Fitch del et Lith

Vincent Brooks Day & Son Imp

Tab. 6304.

TULIPA PULCHELLA.

Native of Asia Minor.

Nat. Ord. Liliaceæ.—Tribe Tulipeæ.
Genus Tulipa, *Linn.* (*Baker in Journ. Linn. Soc.* vol. xiv. p. 275).

Tulipa *pulchella;* bulbo ovoideo tunicis brunneis intus glabris vel apice obscure pilosis, scapo brevissimo unifloro glabro, foliis 2–3 patulis confertis lanceolatis vel linearibus glaucis facie canaliculatis margine obscure ciliatis, perianthii infundibularis segmentis conformibus oblongo-spathulatis acutis rubris facie deorsum lilacinis unguibus immaculatis basi luteis pilosis, staminibus perianthio duplo brevioribus, filamentis basi pilosis, ovario clavato, stigmatibus parvis.

T. pulchella, *Fenzl in Kotschy Reise Cilic.* p. 379; *Baker in Journ. Linn. Soc.* vol. xiv. p. 289.

T. alpina, *J. Gay in Balansa Pl. Orient. Exsic.* anno 1855.

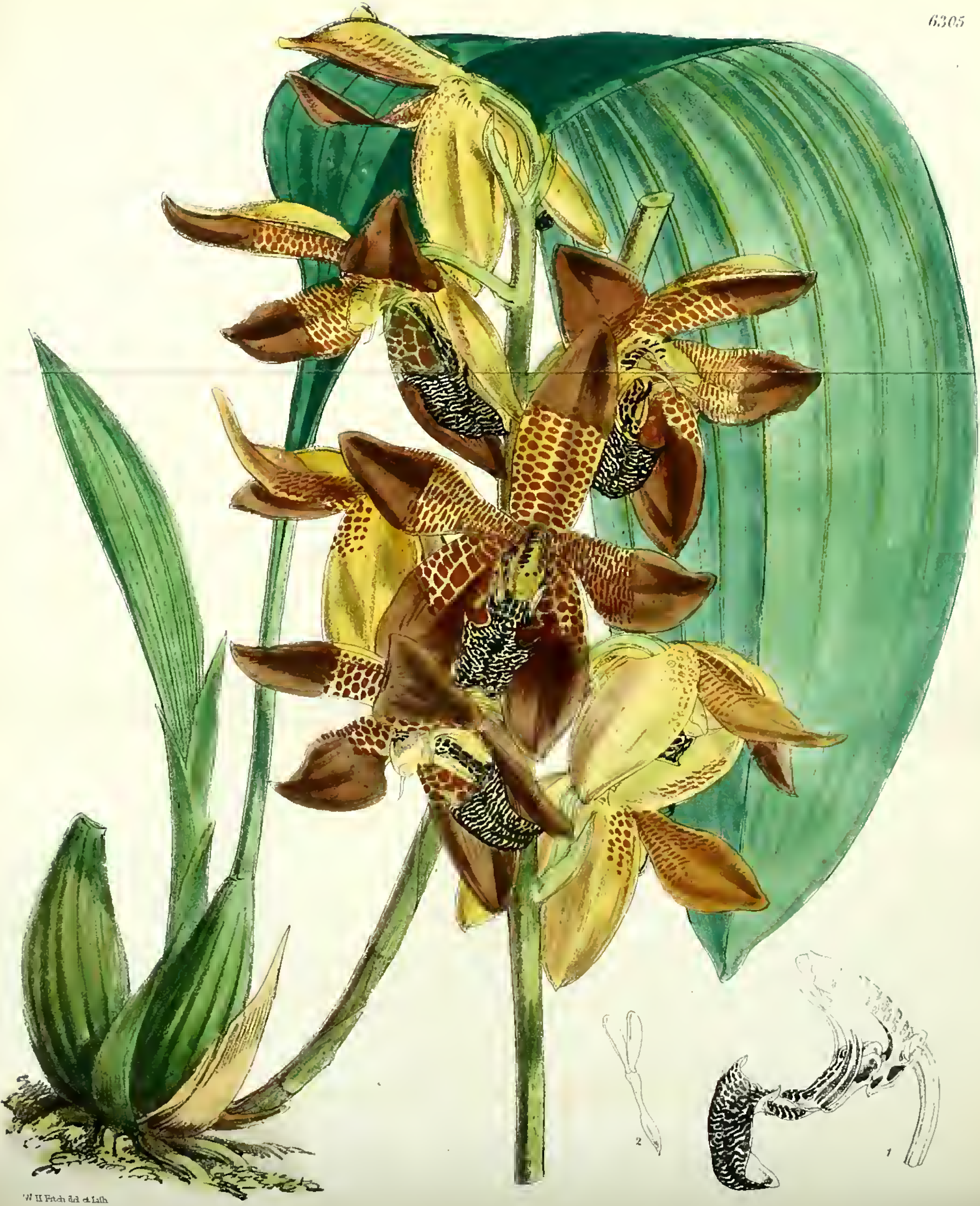
T. sylvestris, *var.* pulchella, *Regel Enum. Tulip.* p. 43.

This species belongs to the same group (*Saxatiles*) as *T. Hageri*, which was figured last year (tab. 6242). They have the showy red flowers of the *Gesnerianæ*, in combination with perianth-segments and stamens hairy at the base, as in the *Sylvestres*. This is a very distinct dwarf species, without any dark-coloured blotch at the base of the perianth-segments. It is a native of the Alpine region of the Cilician Taurus, where it was discovered by Kotschy in 1836, and of course is perfectly hardy. It has only very lately been introduced into cultivation in this country. For the specimens figured we are indebted to the Rev. H. Harpur-Crewe, who flowered it at Drayton Beauchamp in the spring of this present year, and exhibited it at one of the meetings of the scientific committee of the Royal Horticultural Society.

Descr. *Bulb* ovoid, half or three-quarters of an inch in diameter, with many dark brown tunics, which are either entirely glabrous on the face or only obscurely pilose towards the tip. *Scape* one-flowered, glabrous, one to four inches long, bearing two or three crowded spreading leaves close to the surface of the ground, which are lanceolate or the upper one linear, three or four inches long, a quarter to half an inch broad, glaucous, channelled all down the face, obscurely ciliated on the edges. *Perianth* erect, funnel-shaped, about an inch long in wild, an inch and an inch and a half in cultivated specimens; segments all oblong-spathulate, acute, bright mauve-red in the upper half of the face, passing downwards into a slaty lilac, the claw without any dark-coloured blotch, bright yellow and densely pilose at the base. *Filaments* linear, about half as long as the perianth, densely pilose at the base. *Anthers* linear-oblong, half as long as the filament. *Ovary* clavate, half an inch long. *Stigmas* not as broad as the diameter of the ovary.—*J. G. Baker.*

Fig. 1, A single stamen; fig. 2, the pistil:—*both magnified.*

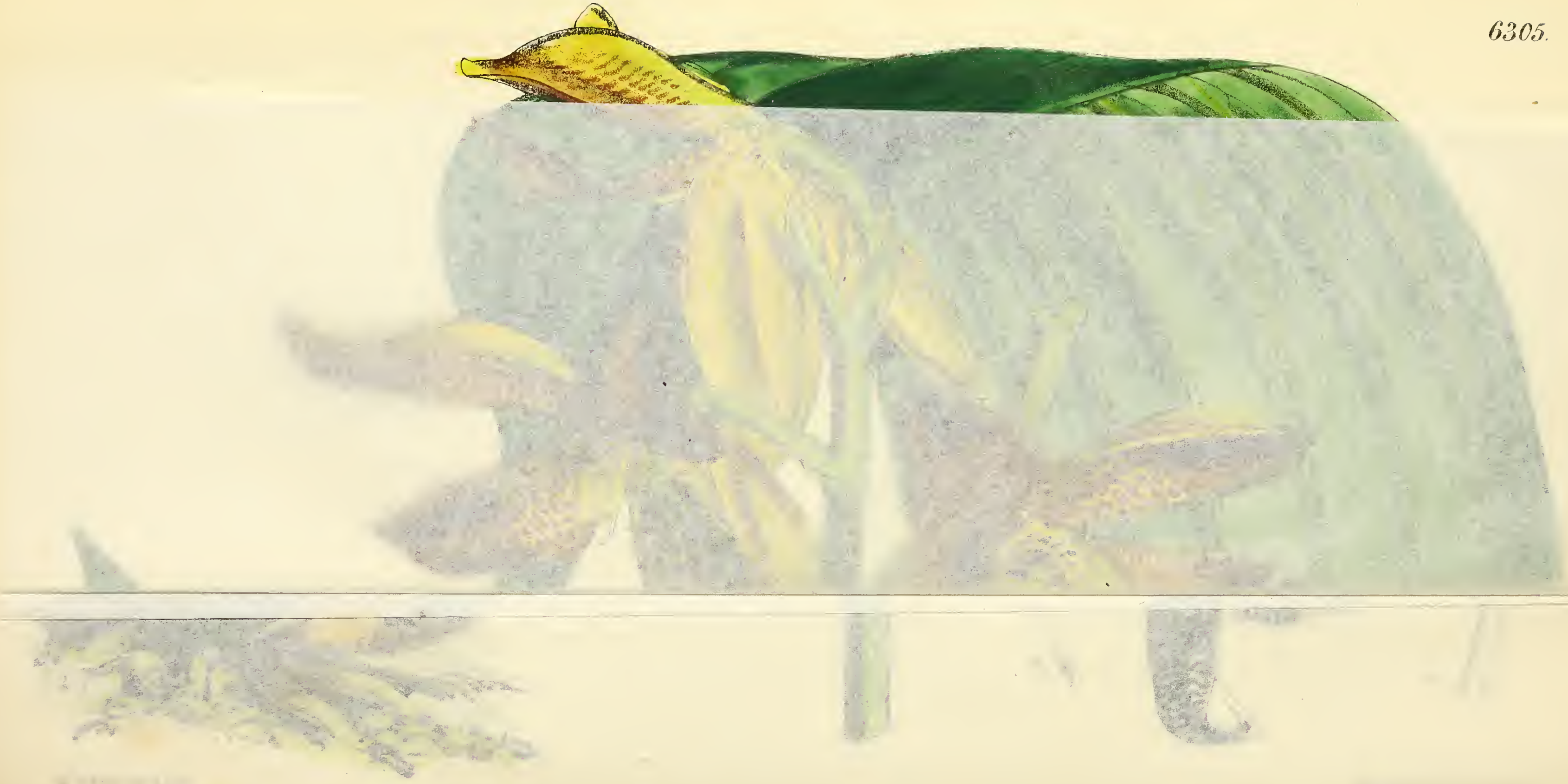
6305



W H Fitch del et Lith

Vincent Brooks Day & Son Imp

6305.



TAB. 6305.

HOULLETIA PICTA.

Native of New Granada.

Nat. Ord. ORCHIDEÆ.—Tribe VANDEÆ.

Genus HOULLETIA, *Brongn.* (*Lindl. in Bot. Reg.* 1841 *t.* 69).

HOULLETIA *picta*, pseudobulbis ovato-lanceolatis, foliis pedalibus petiolatis elongato-lanceolatis subacutis plicatis, pedunculo erecto robusto multifloro, floribus 3½ poll. diamet., sepalis oblongis obtusis cinnamomeis a basi ad medium tessellatis, petalis sepalis concoloribus sed paulo minoribus, basi angustioribus, labelli epichilio late hastato apice lato recurvo canaliculato brunneo-tesselato angulis posticis in cornua acuta retrorsa productis, hypochilio subquadrato brunneo maculato, callo in foveam transversam utrinque acutam marginatam exeunte angulis posticis utrinque in calcar elongatum erectum columna parallelum producto, columna flava dorso maculata.

H. picta, *Lind. et Reichb. f. in Regel Gartenflora*, 1855, p. 2; *Walp. Rep.* vol. vi. p. 616.

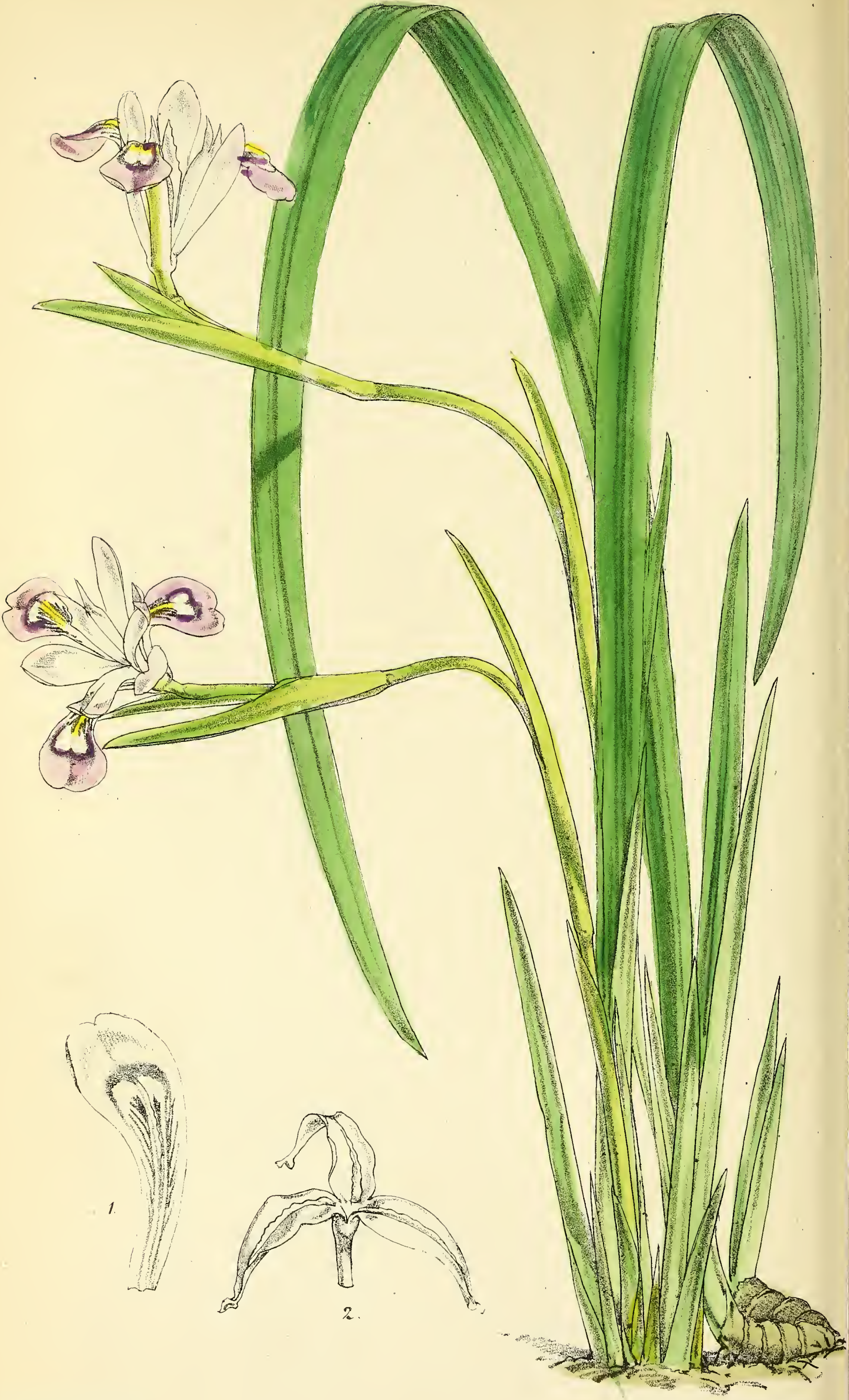
The genus *Houlletia* was founded by Brongniart on a Brazilian plant, discovered by M. Guillemin at Rio de Janeiro during his mission to Brazil in search of evidence concerning the cultivation of tea, and was named after M. Houllet, a gardener who accompanied M. Guillemin on his mission, and transmitted plants to the Jardin de Plantes. Singularly enough M. Brongniart gave no specific name to the plant he described, which is in all probability the *H. Brocklehurstiana*, Lindl. Sect. Orchid. t. 41 (tab. nost. 4072), of which we have native specimens gathered by Gardner on the Organ Mountains (Herb. n. 5871). From this, the original species *H. picta*, though coming from so distant a country, appears to differ very slightly, and chiefly in the more cinnamon-coloured larger flowers, and in the epichyle of the lip not being of a uniform dark violet hue but white and barred with innumerable red-purple bands. The sepals and petals too are longer in proportion. Reichenbach, indeed, says that the flowers of *H. picta* are the smallest of the two, but this is not the case with our specimen. *H. picta* was discovered by Schlim in

New Granada, along with other very similar species of the genus, collected up to an elevation of four to six thousand feet above the sea. It was first flowered at the celebrated orchid garden of Consul Schiller at Hamburgh, and later at Farnham Castle, from whence the specimen here figured was obtained.

DESCR. *Pseudobulbs* tufted, about three inches long, narrow, ovoid, compressed, grooved. *Leaves* with the slender petiole one and a half to two and a half inches long, elliptic-lanceolate, acuminate, plaited, green. *Scape* from the base of the pseudobulb, stout, ascending, green, six- to ten-flowered; sheaths few, short; bracts linear-oblong, green, deciduous; pedicel and ovary three-quarters of an inch long. *Flowers* three and a half inches in diameter; perianth spreading, cinnamon-brown, the leaflets within whole coloured from the tip to the midrib, tessellated from thence to the base. *Sepals* narrow-oblong, tips rounded. *Petals* rather smaller, narrowed towards the base. *Lip* shorter than the petals, jointed at the middle; distal portion (epichyle) broadly hastate, with the broad blunt deeply channelled apex so recurved that the epichyle looks truncate, posterior angles produced into short recurved horns; colour pale yellow, mottled with short transverse red-purple bars; hypochyle somewhat trapeziform, the sides produced backwards into long ascending spurs that are rather shorter than the column; disk of hypochyle yellow, blotched with red purple. *Column* yellow, blotched with brown on the back.—*J. D. H.*

Fig. 1, Ovary column and lip; 2, pollen-masses:—*both enlarged.*

6306



W.H.Fitch del et Lith

Vincent Brooks Day & Son Imp

Tab. 6306.

IRIS SPECULATRIX.

Native of Hong-Kong.

Nat. Ord. Iridaceæ.—Suborder Irideæ.

Genus Iris, *Linn.* (*Baker in Gard. Chron.* 1876, part 1. p. 526.)

Iris (Evansia) *speculatrix ;* rhizomate brevi obliquo, foliis productis tribus linearibus firmis erectis viridibus pedalibus vel sesqui-pedalibus, scapo monocephalo subpedali arcuato, spathæ bifloris valvis tribus linearibus, pedicello ovario subæquilongo, tubo lato brevissimo, limbi lilacini segmentis exterioribus falcatis, laminâ parva orbiculata ungue duplo breviora, fauce albo maculata, ungue pallide lilacino maculato crista flava prædito, segmentis interioribus paulo brevioribus, oblanceolatis, erectis, immaculatis, styli ramis segmentis interioribus æquilongis, capsulæ valvis lanceolatis acuminatis late divergentibus.

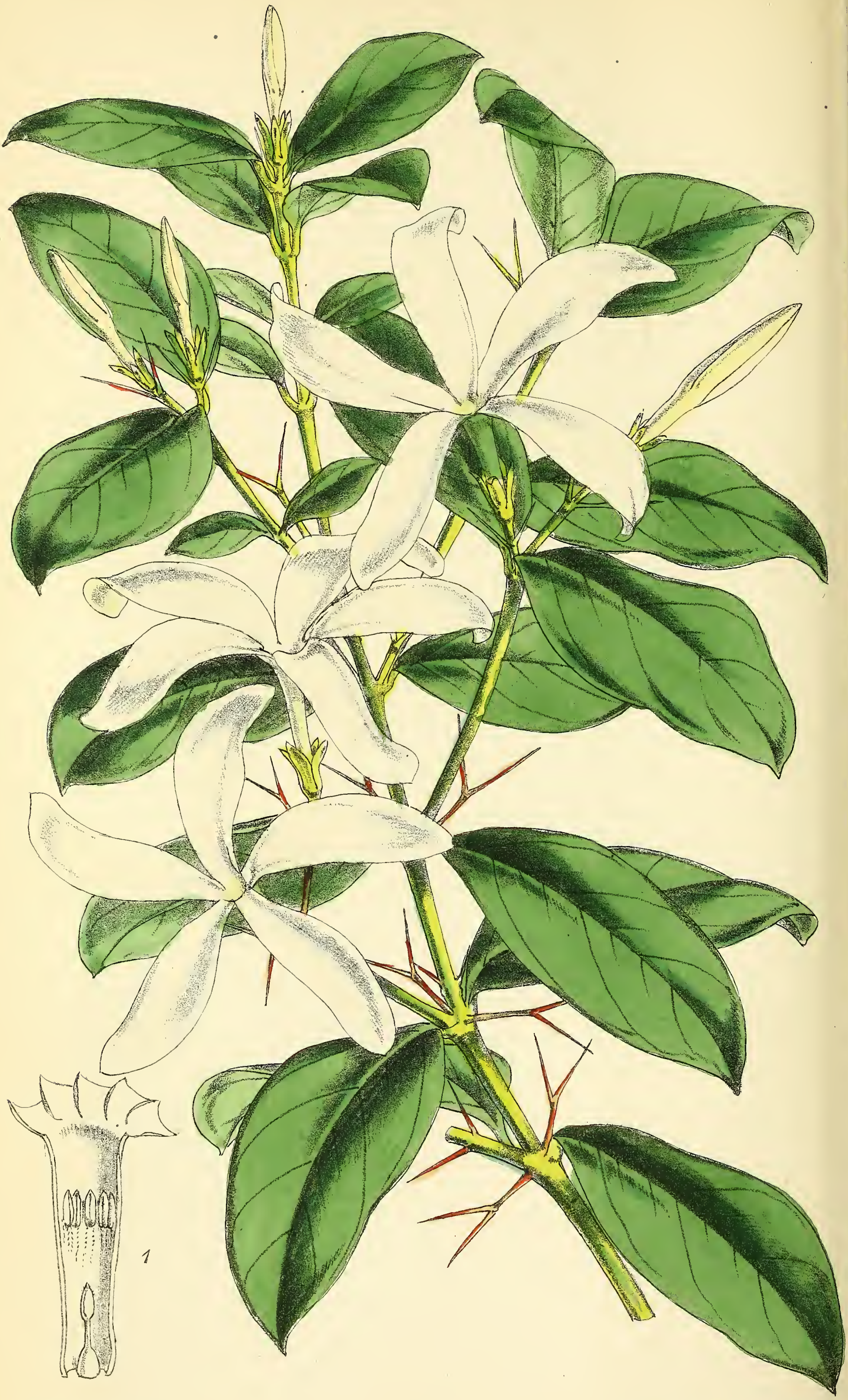
Iris speculatrix, *Hance in Trimen Journ. Bot.* 1875, p. 196; 1876, p. 75. *Baker in Gard. Chron.* 1876, part II. p. 36.

This is a very interesting novelty. It was discovered in April, 1874, by a Chinese workman, attached to the botanical garden of Hong-Kong, on a hill facing the sea between Victoria Peak and Mount Davis, in that island. Its general habit is more like that of one of the Cape or Angolan Moræas than that of the ordinary Irises of the north temperate zone, but in structure it belongs clearly to the small group of crested Irises, of which *I. japonica*, commonly grown in gardens under Ventenat's name of *I. fimbriata*, is the oldest and best known representative. Of this group seven species are now known, of which two are North American, and the others all Japanese, Chinese, and Himalayan. For the fine living plant from which the present plate was made, the Kew collection is indebted to Mr. C. Ford, of the Hong-Kong Botanic Garden. It was received in April, 1877, and came into flower immediately after its arrival in this country. The plant is not likely to prove hardy in England.

July 1st, 1877.

Descr. Rhizome short, creeping near the surface of the ground, about a third of an inch in diameter, the crowded relics of former leaves splitting up into fibres. *Leaves* three produced to a tuft, bright green, erect, firm in texture, a quarter to half an inch broad, the largest about a foot long at the flowering time, lengthening out to a foot and a half afterwards. *Stem* slender, terete, arcuate, one-headed, about a foot long, bracteated by two or three linear adpressed reduced leaves. *Spathe* two-flowered, three-valved, the outer valves linear, green at the flowering-time, one and a half or two inches long. *Pedicel* as long as the ovary at the flowering-time, afterwards an inch or more long. *Ovary* cylindrical-trigonous, about half an inch long. *Perianth* with a broadly funnel-shaped tube an eighth or a sixth of an inch long above the ovary; outer segments of the limb (falls) an inch long, spreading falcately, with a bright lilac almost orbicular blade with a couple of white spots at the base, which is half as long as the claw, the latter paler in colour, spotted and veined with deep lilac, and furnished from top to bottom with a shallow bright yellow crest; inner segments of the limb oblanceolate-unguiculate, pale lilac, unspotted, permanently erect, rather shorter than the outer ones. *Branches* of the style, including their lanceolate crests, as long as the inner segments of the perianth, with which they coincide in colour. *Capsule* an inch long, with three lanceolate acuminate diverging valves.—*J. G. Baker.*

Fig. 1, An outer segment of the perianth, *enlarged*: fig. 2, capsule split open, *natural size.*



W. Fitch. del. et lith.

Vincent Brooks Day & Son Imp.

Tab. 6307.

CARISSA GRANDIFLORA.

Native of Port Natal.

Nat. Ord. Apocyneæ.—Tribe Carisseæ.

Genus Carissa, *Linn.* (*Benth. et Hook. f. Gen. Plant.* vol. ii. p. 695.

Carissa (Arduina) *grandiflora ;* glaberrima, foliis breviter petiolatis, ovatis ovato-oblongis v. rotundatis, apiculatis coriaceis costa subtus crassa venis obscuris, floribus subsessilibus terminalibus solitariis v. binis, calycis segmentis ovato-lanceolatis acuminatis intus glandulosis, corollæ tubo elongato lobis oblongis obtusis sinistrorsum obtegentibus, ovarii loculis ∞-ovulatis, bacca ovoidea polysperma.

C. grandiflora, *A. DC. Prod.* vol. viii. p. 335 ; *Saunders, Refug. Bot.* t. 300.

Arduina grandiflora, *E. Meyer, Comm. Pl. Dreg.* p. 190.

A very pretty evergreen bush, with white fragrant flowers and deep green leaves, of easy culture in a moderate stove or warm greenhouse during winter, and in a greenhouse or the open air in summer. It is a native of Natal, where it was discovered by Drege, and has been since collected by Peddie, Krauss and other travellers. We have also seen specimens from St. Helena, where it is cultivated. Bentham (Gen. Plant, *l. c.*) observes that it differs from other species of *Carissa* in the glands within the base of the calyx-segments, and in the indefinite ovules, and suggests that it may be generically different, but the habit and other characters are so entirely that of *Carissa* that it would seem unnatural to separate it, and I follow him in retaining it in the genus.

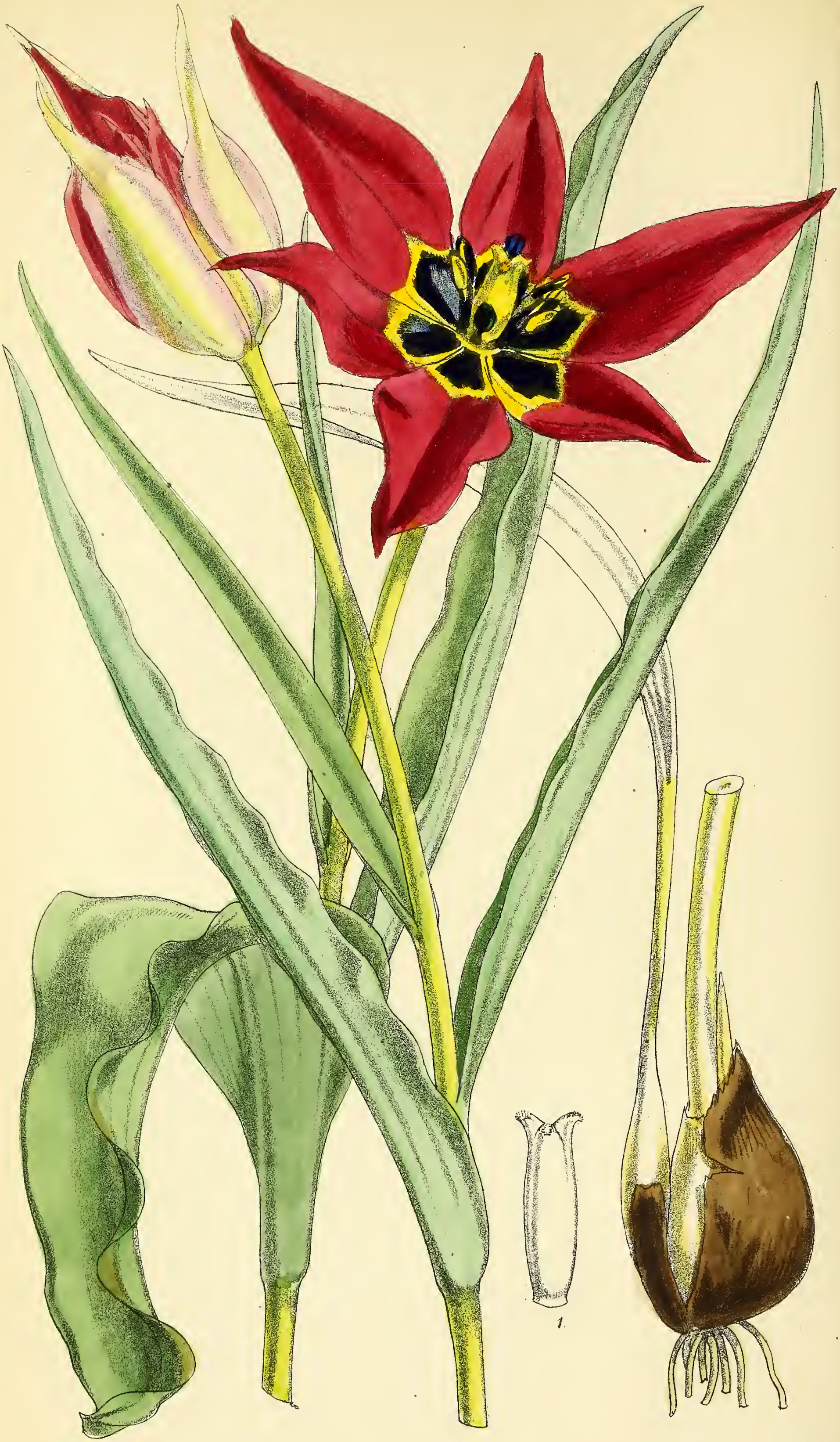
Carissa grandiflora was introduced by Cooper, when collecting for Mr. Wilson Saunders; in a note to the herbarium specimen which he sent home he gives it the native name of 'Amatungula,' adding, "fruit used for jam, tarts, etc." Harvey states of the African Carissas generally, that the fruit is plum-like and delicious. That of the Indian *C. Carandas* is eaten both raw and cooked.

Our plant flowers in the Palm House at the Royal

Gardens in May. It has narrower leaves and much larger flowers than the native specimens and that figured in the 'Refugium,' which has also a greenish corolla, ours being pure white.

Descr. A rigid glabrous shrub, with stout cylindric green branches. *Leaves* one and a half to two and a half inches long, very variable in width, from rounded ovate to oblong ovate, apiculate, very coriaceous, with a stout midrib beneath and very obscure nerves, margin slightly recurved; petiole very short. *Spines* very stout two or more inches long, and forked, more slender in the cultivated plant. *Flowers* single or in pairs at the ends of the branches, very shortly peduncled; peduncles with a few subulate bracts. *Calyx-tube* short, ovoid; segments twice as long as the tube, narrow, lanceolate, broader in the native specimen. *Corolla-tube* white, much longer than the calyx-segments, half an inch long, cylindric, pubescent within; limb two to three inches in diameter; segments oblong, rounded at the tip, twisted and overlapping to the left in bud. *Stamens* half way down the corolla tube, anthers oblong, sessile. *Ovary* ovoid; style short; stigma clavate. *Berry* half an inch or more long, ovoid, fleshy. *Seeds* numerous, imbricated, orbicular.—*J. D. H.*

Fig. 1, Corolla tube laid open, showing the stamens and pistil:—*enlarged.*



W. H. Fitch del et Lith

Vincent Brooks Day & Son Imp

Tab. 6308.

TULIPA UNDULATIFOLIA.

Native of Asia Minor.

Nat. Ord. Liliaceæ.—Tribe Tulipeæ.

Genus Tulipa, *Linn.* (*Baker in Journ. Linn. Soc.* vol. xiv. p. 275).

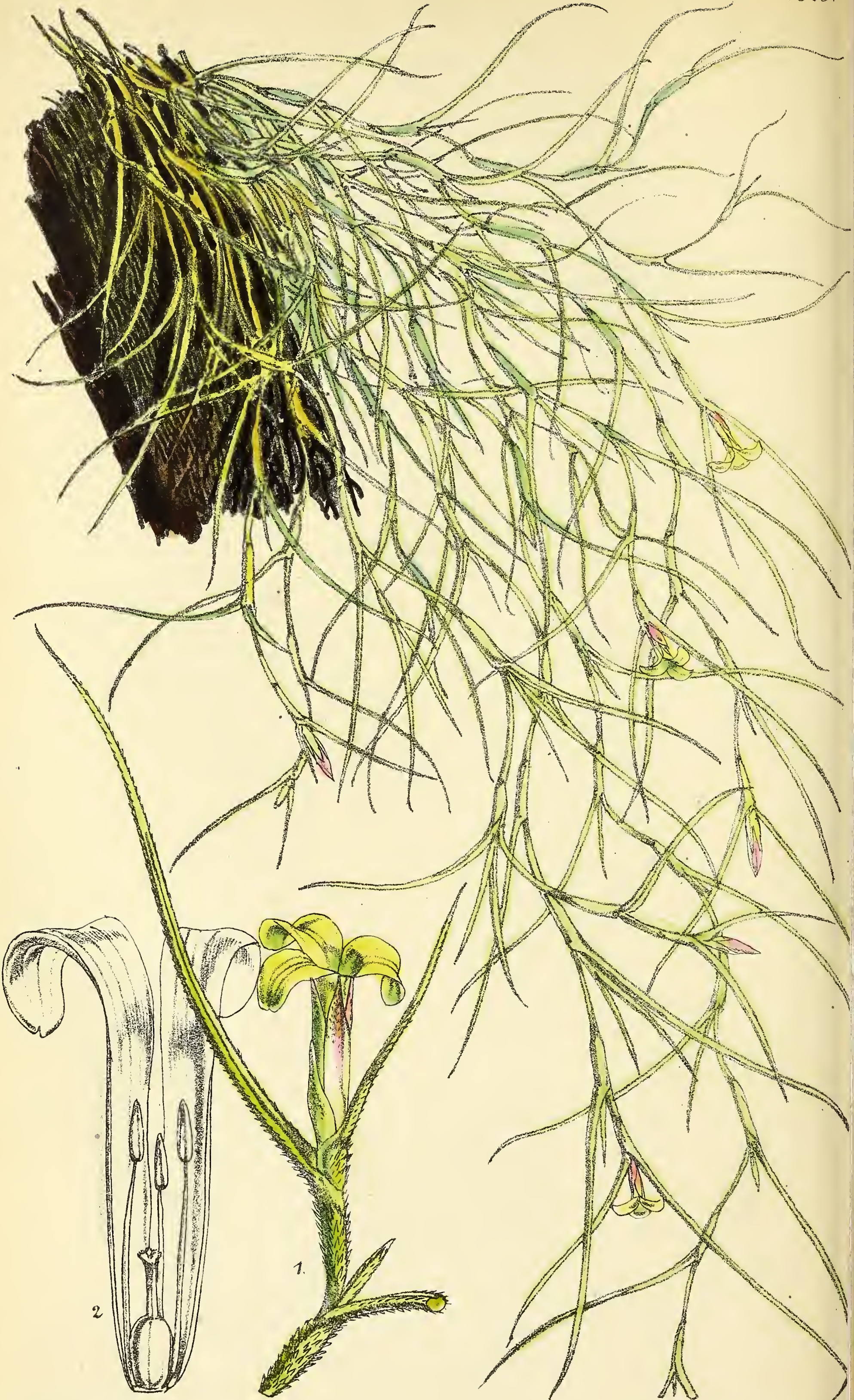
Tulipa *undulatifolia;* bulbo ovoideo magnitudine mediocri tunicis intus glabris, caule monocephalo puberulo, foliis 3–4 prope medium caulis confertis glaucescentibus margine hyalinis obscure ciliatis, inferioribus lanceolatis acuminatis valde undulatis profunde canaliculatis, superioribus linearibus, perianthii splendide rubri segmentis conformibus oblongo-lanceolatis acutis, unguibus maculâ atra oblongo-oblanceolata luteo marginata decoratis, filamentis atris glabris antheris oblongis paulo longioribus, ovario clavato, stigmatibus parvis.

Tulipa undulatifolia, *Boiss. Diagn.* ser. I. pt. 5, p. 57: *Baker in Journ. Linn.* Soc. vol. xiv. p. 286.

The increased attention which has been paid lately to hardy bulbs is producing as one of its fruits the discovery and introduction into our gardens of several new species of tulip. The present plant is allied to *T. Greigi*, Regel. (Bot. Mag. tab. 6177) and *T. Eichleri*, Regel (Bot. Mag. t. 6191), but is much more slender in habit, with narrow much undulated leaves and perianth-segments narrowed gradually to a point after the fashion of that very fine and too-much neglected south European species, *T. Oculus-solis*. *T. undulatifolia* is less effective horticulturally than any of these three, and comes from a different country. It is very near the Greek *T. bœtica* of Heldreich, which has not yet been figured. It was discovered many years ago by M. Boissier on the Tartali-dagh, just above Smyrna, but was only brought into cultivation two years ago by Mr. Elwes. Our drawing was made from bulbs which he procured on the Boz-dagh, sixty or eighty miles east of Smyrna, at an elevation of 4000 to 5000 feet above sea-level, which flowered at Kew early in May of the present year. This spring Mr. Maw has procured a good supply of bulbs from Boissier's original station, which he has distributed with his customary liberality.

Descr. *Bulb* ovoid, middle-sized for the genus (about an inch in diameter) with several brown membranous tunics which are glabrous internally. *Stem* one-headed, about a foot long in the cultivated plant, glaucous, terete, obscurely downy. *Leaves* three or four, crowded near the middle of the stem, glabrous, glaucous, with a hyaline obscurely ciliated border, the lower one lanceolate, acuminate, six or eight inches long, an inch to an inch and a quarter broad near the base, much undulated, deeply channelled down the face, the upper ones linear, scarcely at all undulated. *Peduncle* four or five inches long. *Perianth* campanulate, erect, two inches long, all the six segments uniform in shape, oblong-lanceolate, narrowed from the middle to a long point, bright red on the face, the claw furnished with an oblanceolate-oblong black blotch bordered with yellow, which is half an inch long. *Filaments* black, linear, glabrous, three-eighths of an inch long; anthers black, oblong, rather shorter than the filaments; pollen yellow. *Ovary* clavate, green, half an inch long; *stigmas* an eighth of an inch broad.—*J. G. Baker.*

Fig. 1, Pistil:—*magnified.*



W.H.Fitch del et Lith

Vincent Brooks Day & Son Imp

TAB. 6309.

TILLANDSIA USNEOIDES.

Native of Tropical America.

Nat. Ord. BROMELIACEÆ.

Genus TILLANDSIA, *Linn.* (*Endl. Gen. Plant.* p. 183).

TILLANDSIA (Strepsis) *usneoides:* squamulis patulis argenteis cana, e basi ramosissima, ramis filiformibus inordinate flexuosis intricatis pendulis, foliis bifariis patentibus v. recurvis subremotis filiformibus teretibus acuminatis canaliculatis, vaginis teretibus, floribus parvis terminalibus viridibus subsessilibus, sepalis lanceolatis 3-nerviis bracteis convolutis 3-nerviis acuminatis subduplo longioribus, petalorum unguibus 5-nerviis sepalis æquantibus lamina oblonga recurva apice rotundata, staminibus inclusis antheris linearibus, filamentis filiformibus glabris, ovario oblongo, stylo breviusculo, stigmate 3-lobo.

T. usneoides, *Linn.; Lamk. Encycl.* t. 224, f. 2. *Chapman Flor. S. U. States,* 472. *Griseb. Fl. Brit. W. Ind.* p. 598. *Sloane Hist. Jam.* t. 122, f. 2, 3.

This, the Spanish Moss, Old Man's Beard, and Long Moss, of the Southern United States and the West Indies, is well described in Sloane's History of Jamaica as a "mossie plant . . . with stalks the bigness of a thread, consisting of a thin skin, whitish, as if covered with a hoar-frost, having within that a long tough black hair, like a horse-hair . . . very often a yard long, hanging down on both sides from the branches of the trees they adhere to, being curled, or twining and winding within another, and making a show of an old man's beard (whence the name), or as if they were made to climb, which I never saw they did." Further on he says, "it is used to pack up anything which otherwise may easily be broken, as cotton is sometimes made use of with us;" and again, "the inward black hairs of this moss's stalk are made use of by the birds called Watchipickets for making their curiously contrived nests hanging on the twigs of trees."

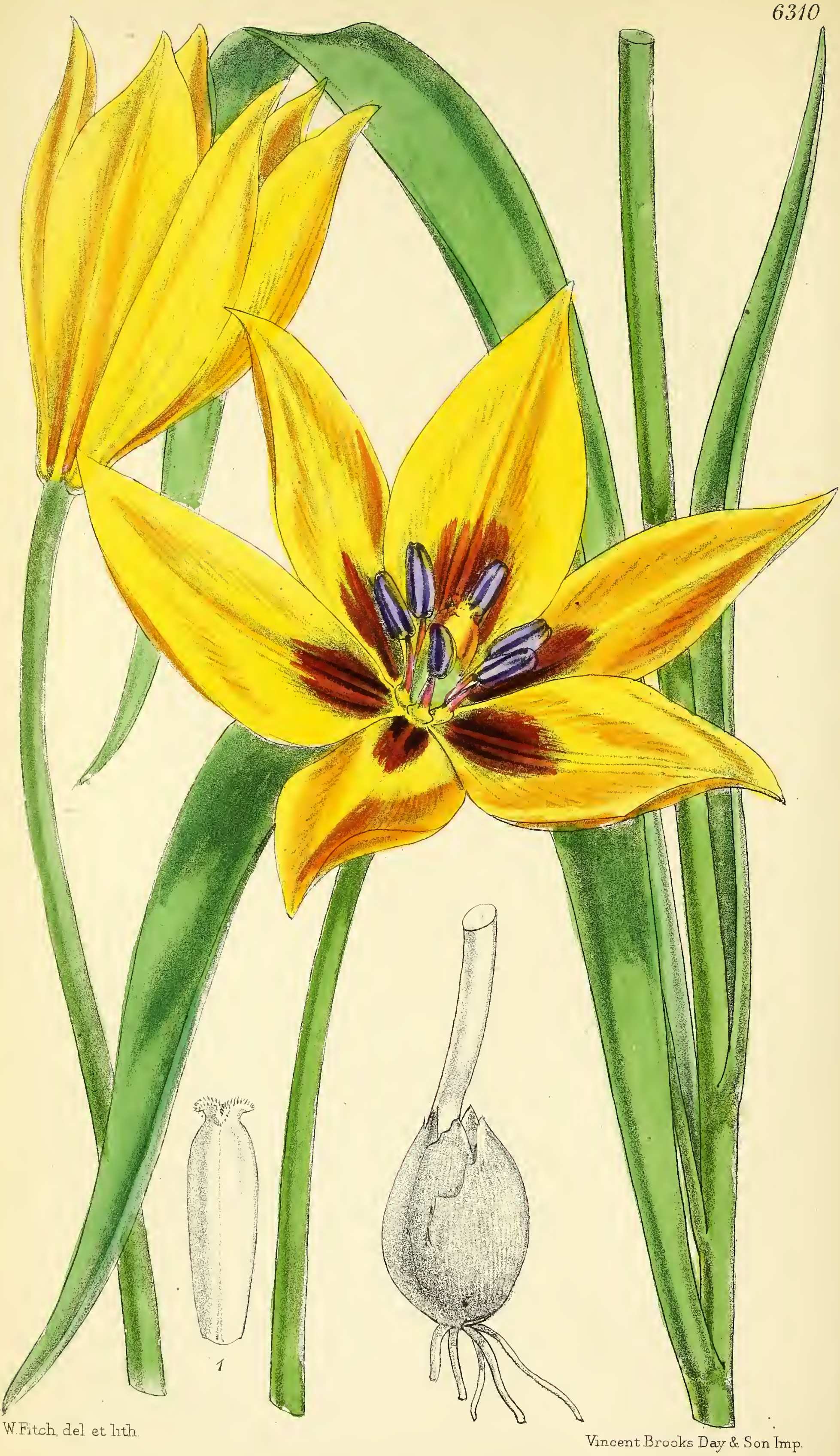
To this description I have little to add, except that the Spanish Moss is a very widely distributed plant in the hotter parts of America, from Carolina to South Brazil, and on the

Andes, hanging in bunches sometimes many yards long from the branches of trees. It has frequently been sent to England as packing for Orchids, but rarely alive, and it is not till quite lately that it has been successfully cultivated at Kew, from plants imported (as packing from Jamaica). The specimen from which our flowers are figured was contributed to the Royal Gardens by Mr. J. C. Hopwood, of Stoke Newington. It now thrives in a damp stove, growing on pieces of tree-fern, and other substances, and flowering in spring. The scurfy scales that clothe the plant are beautiful microscopic objects. Each presents a nucleus of four central cells, around which other cells are concentrically disposed, and a delicate transparent wing surrounding the nucleus, and formed of a single series of slender extremely delicate radiating cells. The hairs of the funicle of the seed are formed of superimposed cells, of which each fits into a notch of the one below it.

DESCR. Forming lax tufts, one to many feet long, pendulous from the branches of trees, and clothed everywhere with a spreading silvery scurf. *Stems* excessively branched from the base, uniform in thickness throughout, filiform, tough, flexuose; branches interwoven. *Leaves* alternate, bifarious, uniform along the whole of the branches, spreading, one to three inches long, filiform, acute, groved on the upper side; sheaths half to two inches long, cylindric. *Flowers* about one-third of an inch long, on a very short stout peduncle, terminal, solitary, green. *Bracts* convolute, acuminate, 3-nerved, about half the length of the lanceolate, acuminate, green, almost glabrous, 3-nerved sepals, which are tinged with red. *Petals* with a linear 5-nerved claw, equalling the sepals; limb linear-spathulate, recurved, obtuse. *Stamens* included; filaments filiform; anthers linear, erect. *Ovary* oblong; style short, stigmas capitate. *Capsule* half to one inch long, straight, linear, trigonous, beaked; valves of a membranous 1-nerved outer layer, and a horny brown separating inner one. *Seeds* very slender, fusiform; testa with a long straight pencil of cellular hairs.—*J. D. H.*

Fig. 1, Branch, leaves, and flowers; 2, petals, stamen, and pistil:—*enlarged.*

6310



W. Fitch, del et lith.

Vincent Brooks Day & Son Imp.

TAB. 6310.

TULIPA ORPHANIDEA.

Native of Greece.

Nat. Ord. LILIACEÆ.—Tribe TULIPEÆ.

Genus TULIPA, *Linn.* (*Baker in Journ. Linn. Soc.*, vol. xiv. p. 275.)

TULIPA *Orphanidea*; bulbo globoso tunicis intus apice brunneo-sericeis, caule glabro monocephalo, foliis 2–3 linearibus glabris glaucescentibus facie canaliculatis, perianthii infundibularis lutei rubro tincti segmentis omnibus oblongis acutis unguibus rubro-brunneo suffusis, exterioribus angustioribus, filamentis linearibus basi pilosis incrassatis, antheris oblongis filamento brevioribus, ovario clavato staminibus breviore stigmatibus magnitudine mediocribus.

T. Orphanidea, *Boiss. in Orphan. Pl. Græc. Exsic.* No. 843; *Heldr. in Regel Gartenfl.* vol. xi. (1862) p. 309, tab. 373, figs. 1 and 2; *Baker in Journ. Linn. Soc.* vol. xiv. p. 294.

T. Celsiana, *Heldr. in Fl. Græc. Exsic., non DC.*

T. sylvestris, *var* Orphanidea, *Regel Enum.* p. 43.

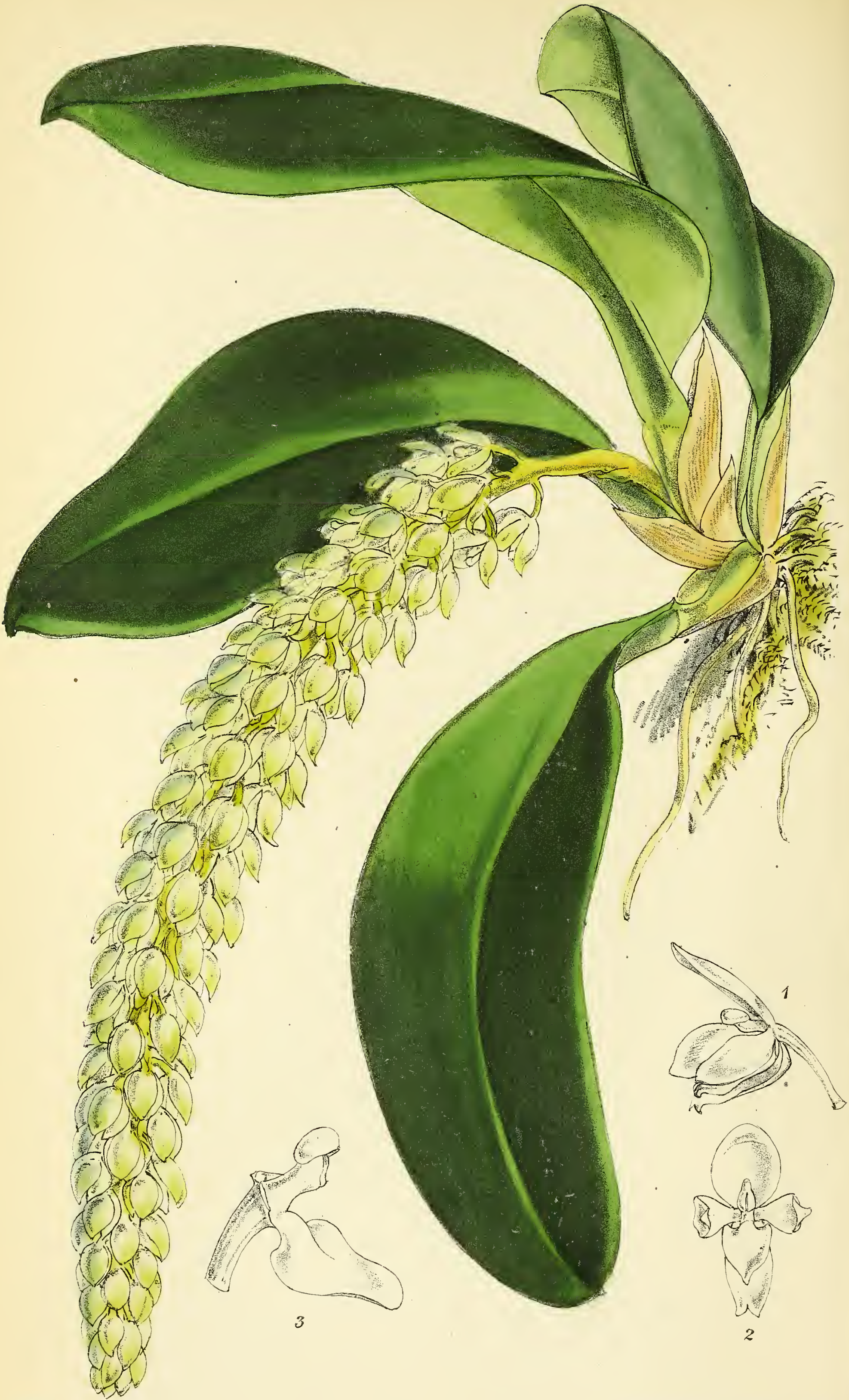
T. Orphanidesii, Minervæ et atheniensis, *Hort.*

For garden purposes this is the finest of all the Tulips of the *sylvestris* group. It has flowers as large as those of *sylvestris* itself, but flushed on the outside with red instead of green. It is quite hardy, being an inhabitant of the mountains of Greece, at an elevation of from three thousand to four thousand feet above sea-level. It has been for some time in cultivation under various names, having been discovered in 1857 on Mount Malevo, in Eastern Laconia by Dr. Orphanides, Professor of Botany in the University of Athens, after whom it is named. Our drawing was taken from a plant which flowered with the Rev. H. Harpur-Crewe, at Drayton-Beauchamp, in June of this present year. In its native stations it flowers as early as April, or even the latter end of March.

DESCR. Bulb globose, about an inch in diameter, with many brown tunics, which are clothed with brown silky hairs on the inside towards the top. *Stem* half to one foot high, terete, glaucous, glabrous, tinged with red, one-headed. *Leaves* two or three placed near together below the middle of the stem, erecto-patent or falcate, linear, six or nine inches long, under an inch broad, glabrous, glaucous, channelled down the face. *Perianth* funnel-shaped, in wild specimens about two inches, in cultivated two and a half or three inches long, bright yellow, tinged with red on the outside, all the segments oblong and acute, but the outer much narrower than the inner three, all flushed with a blotch of reddish-brown on the claw, the edges of which are ciliated with minute silky hairs. *Stamens* an inch long; filaments linear, incrassated and densely pilose at the base; *anthers* oblong, shorter than the filaments. *Ovary* green, clavate, shorter than the stamens; *stigmas* one-sixth of an inch broad. —*J. G. Baker.*

Fig. 1, The pistil:—*magnified.*

6311



W. Fitch, del. et lith.

Vincent Brooks Day & Son Imp.

Tab. 6311.

NOTYLIA albida.

Native of Central America.

Nat. Ord. Orchideæ.—Tribe Vandeæ.

Genus Notylia, *Lindl.* (*Reichb. in Walp. Ann.* vol. vi. p. 670.)

Notylia *albida*; pseudobulbis parvis cæspitosis costatis unifoliatis, foliis planis lineari-oblongis obtusis apiculatis in petiolum brevem compressum antice sulcatum angustatis coriaceis aveniis, racemo breviter pedunculato elongato cylindraceo densifloro, rachi et pedunculo crasso, bracteis subulatis, floribus imbricatis albidis, sepalo dorsali fere orbiculari, lateralibus in unum ovatum apice 2-bifidum labello-suppositum connatis, petalis oblongo-obovatis subacutis, labello breviter unguiculato trulliformi acuto ecalloso et ecarinato angulis posticis acutis, columna breviuscula glabra, anthera elongata.

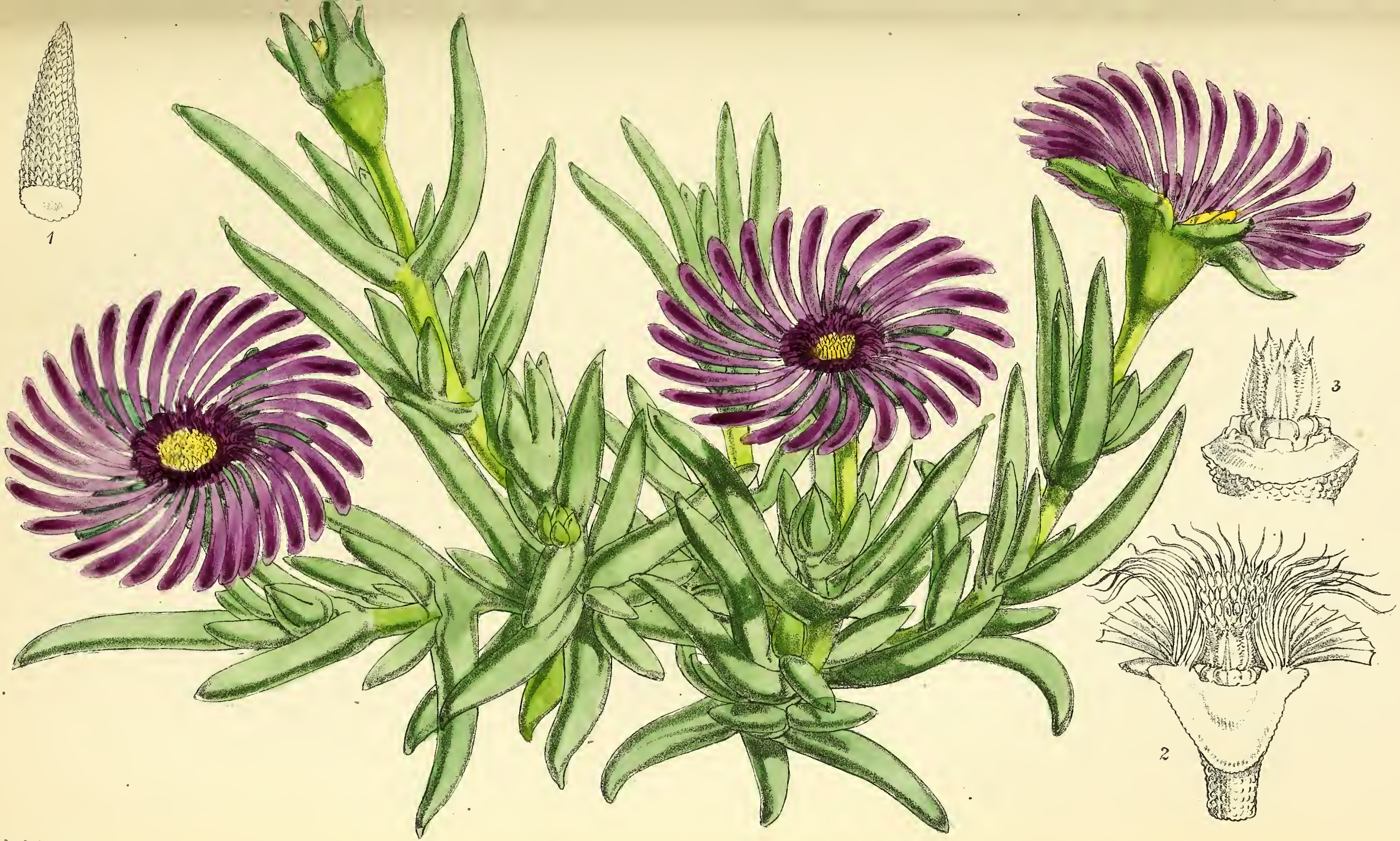
N. albida, *Klotzsch in Otto and Dietr. Alg. Gartenzeit.* 1851, p. 21; *Reichb. f., Xen. Orchid.* vol. 1, p. 47, *et in Walp. Ann.* vol. vi. p. 674, *et in Gard. Chron.* 1870, p. 987.

Notylia is on the whole an inconspicuous genus of orchids, containing some eighteen species, skilfully diagnosed by Reichenbach in Walper's Annals. It is a native of South America, from Mexico to Brazil. The species here figured is one of the largest flowered ones, though inferior in this respect to some others, as it is in colour. Reichenbach well remarks that it resembles an *Eria* in habit and colour, or a small-flowered *Angræcum*. It was discovered, I believe, by Warscewicz, in Central America, and sent by him to the Royal Horticultural Society's Gardens many years ago, since which time it has been re-imported by Messrs. Veitch, to whom I am indebted for the specimen here figured, which first flowered April, 1872, in Messrs. Veitch's nursery.

Descr. *Pseudobulbs* one-half to an inch long, compressed, deeply grooved in front, pale green. *Leaves*, one from the top of each pseudobulb, four to five inches long, linear-oblong, rounded and apiculate at the tip, flat, coriaceous, nerveless, keeled beneath, pale green, narrowed into a short stout flattened petiole about one-third of an inch long. *Raceme* from the base of the pseudobulb, six inches long, pendulous, curved, cylindric; peduncle very short, and rachis stout, pale green; bracts small, subulate. *Flowers* shortly pedicelled, one-third of an inch in diameter, close-set, imbricating, shortly pedicelled, white, faintly marbled with yellow. *Dorsal sepal* nearly orbicular, concave; lateral sepals combined into one ovate blade, which is bifid at the tip, and placed under the lip. *Petals* obovate-oblong, rather shorter than the sepals, subacute. *Lip* trowel-shaped, with a very short claw, the posterior angles rounded, tip subacute, disk neither keeled nor tubercled. *Column* rather stout, glabrous. *Anther* oblong.—*J. D. H.*

Fig. 1, side and 2 front view of flowers; 3, column and lip:—*all enlarged.*

6312



W. Fitch, del. et lith.

Vincent Brooks Day & Son Imp.

TAB. 6312.

MESEMBRYANTHEMUM COOPERI.

Native of South Africa.

Nat. Ord. FICOIDEÆ.—Tribe MESEMBRYEÆ.

Genus MESEMBRYANTHEMUM, *Linn.* (*Benth. et Hook. f. Gen. Plant.* vol. i. p. 853.)

MESEMBRYANTHEMUM (Papulosa) *Cooperi;* totum creberrime papulosum, glaucum herbaceum, perenne, ramosum, ramis decumbentibus, foliis oppositis patenti-recurvis semi-teretibus linearibus obtusis angulis obtusis facie subconvexa apicibus cylindraceis obtusiusculis glaberrimis, pedunculis terminalibus solitariis brevibus cylindraceis 1-rarissime 2–3-floris. floribus 2½ poll. diametr. calycis tubo obconico lobis tubo æquilongis subacutis patenti-recurvis 2 cæteris longioribus, petalis exterioribus perplurimis 1-seriatis anguste linearibus roseo-purpureis, interioribus (v. staminodiis) multo brevioribus et angustioribus erecto-recurvis, staminibus confertis, antheris stramineis, stigmatibus 5–6 late subulatis.

This is a very handsome and free-growing species of *Mesembryanthemum,* filling a large pot with its blue-glaucous glistening stems and foliage, and bearing a handsome purple flower. It belongs to the *Crassulina* group of the *Papulosa* division, but differs very much from all previously described species, all of which have very slender stems. Its precise habitat is unknown; it was sent by Mr. Cooper when collecting in South Africa for Mr. Wilson Saunders, who, with his usual liberality, presented specimens to Kew, which flower annually in the month of June.

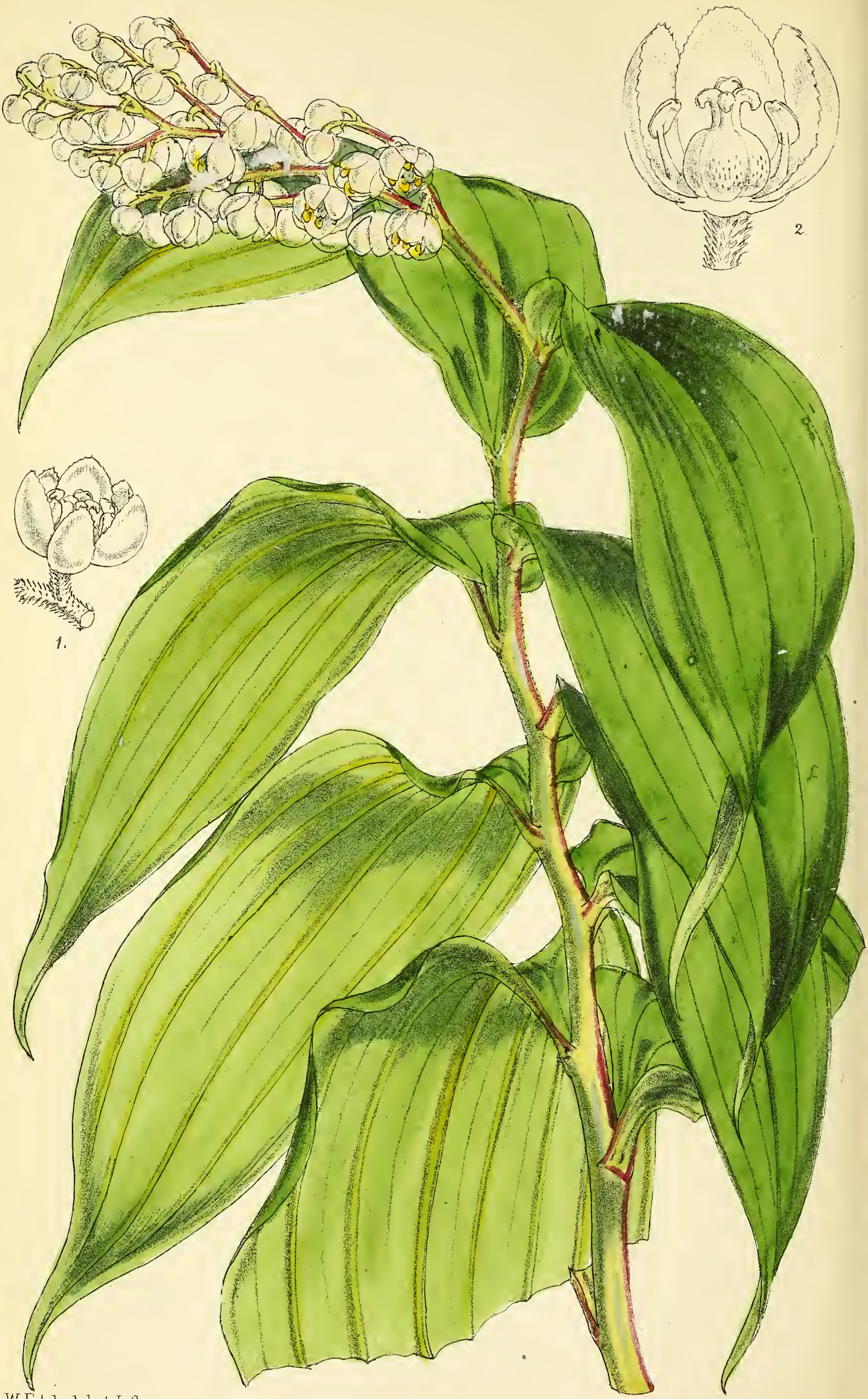
DESCR. A much-branched quite glabrous decumbent glaucous blue herb, forming large masses, clothed everywhere on stem, leaves, and calyx with close-set crystalline papillæ. *Branches* as thick as a duck-quill, cylindric, terete, not thickened at the nodes. *Leaves* rather close-set, opposite, one and a half to two inches long, spreading and recurved, nearly linear, gradually narrowed to the subobtuse apex, semi-terete, the angles of the upper surface rounded, very

AUGUST 1ST, 1877.

soft and fleshy; papillæ in rows, giving a minutely striate appearance to the leaf. *Peduncles* solitary, terminal, one-rarely two- or three-flowered, short, cylindric. *Flowers* two and a half inches in diameter. *Calyx* tube obconic, half an inch long; *lobes* five, spreading, longer than the tube, three of them shorter than the others, semi-terete obtuse or subacute. *Petals* of outer series twice as long as the calyx-lobes, very narrow, linear, rose-purple; inner series or staminodes one-third shorter, very narrow, suberect and recurved, also rose-purple. *Stamens* densely crowded in the centre of the flower, forming a small yellow disk about one quarter of an inch in diameter. *Stigmas* four or five, ovate-lanceolate, apiculate, seated on the top of the 5-lobed ovary.—*J. D. H.*

Fig. 1, Apex of leaf; 2, vertical section of flower; 3, top of ovary and stigmas:—*all magnified.*

6313



W. Fitch del et Lith.

Vincent Brooks Day & Son Imp

Tab. 6313.

TOVARIA OLERACEA.

Native of Temperate Sikkim.

Nat. Ord. Liliaceæ.—Tribe Tovarieæ.

Genus Tovaria, *Neck.* (*Baker in Journ. Linn. Soc.* vol. xiv. p. 564.)

Tovaria *oleracea;* caule 2–8-pedali simplici, basi nudo, medio foliato, sursum flexuoso dense piloso, foliis 8–14 breviter petiolatis magnis oblongis acutis membranaceis facie glabris dorso puberulis, venis 7–9 magis conspicuis, floribus in paniculam amplam dispositis, ramis flexuosis dense pubescentibus, pedicellis solitariis flore æquilongis vel longioribus, bracteis minutis linearibus, perianthii campanulati albi rubro tincti segmentis oblongis obtusis, staminibus perianthio subtriplo brevioribus, antheris parvis, oblongis filamento lineari, ovario globoso, stylo brevissimo apice stigmatoso tricuspidato.

Tovaria oleracea, *Baker in Journ. Linn. Soc.* vol. xiv. p, 569.

Smilacina oleracea, *Hook. fil. et Thoms. Herb. Ind.*

Smilacina, sp., *C. B. Clarke in Journ. Linn. Soc.* vol. xv. p. 122.

This is far the most striking of the eighteen species of *Tovaria*, a genus better known by its much later name of *Smilacina.* It is an inhabitant of the temperate region of Sikkim, at an elevation of from eight thousand to twelve thousand feet above sea-level, and, as might be expected, proves to be perfectly hardy in English gardens. It was gathered first by Griffith, in 1849 by Sir Joseph Hooker, whose sketch made on the spot from the living plant is now in the Kew collection of drawings, and recently by Dr. Treutler and Mr. C. B. Clarke. It is the *Smilacina* described without a name by the latter gentleman in the account of his journey from Darjeeling to Tonglo, printed in the fifteenth volume of the Journal of the Linnean Society. We owe its introduction into cultivation to Dr. Treutler, who presented some of the rhizomes which he brought home to the Kew collection, where they flowered in the herbaceous ground this present summer. According to Dr. Hooker's note (see his

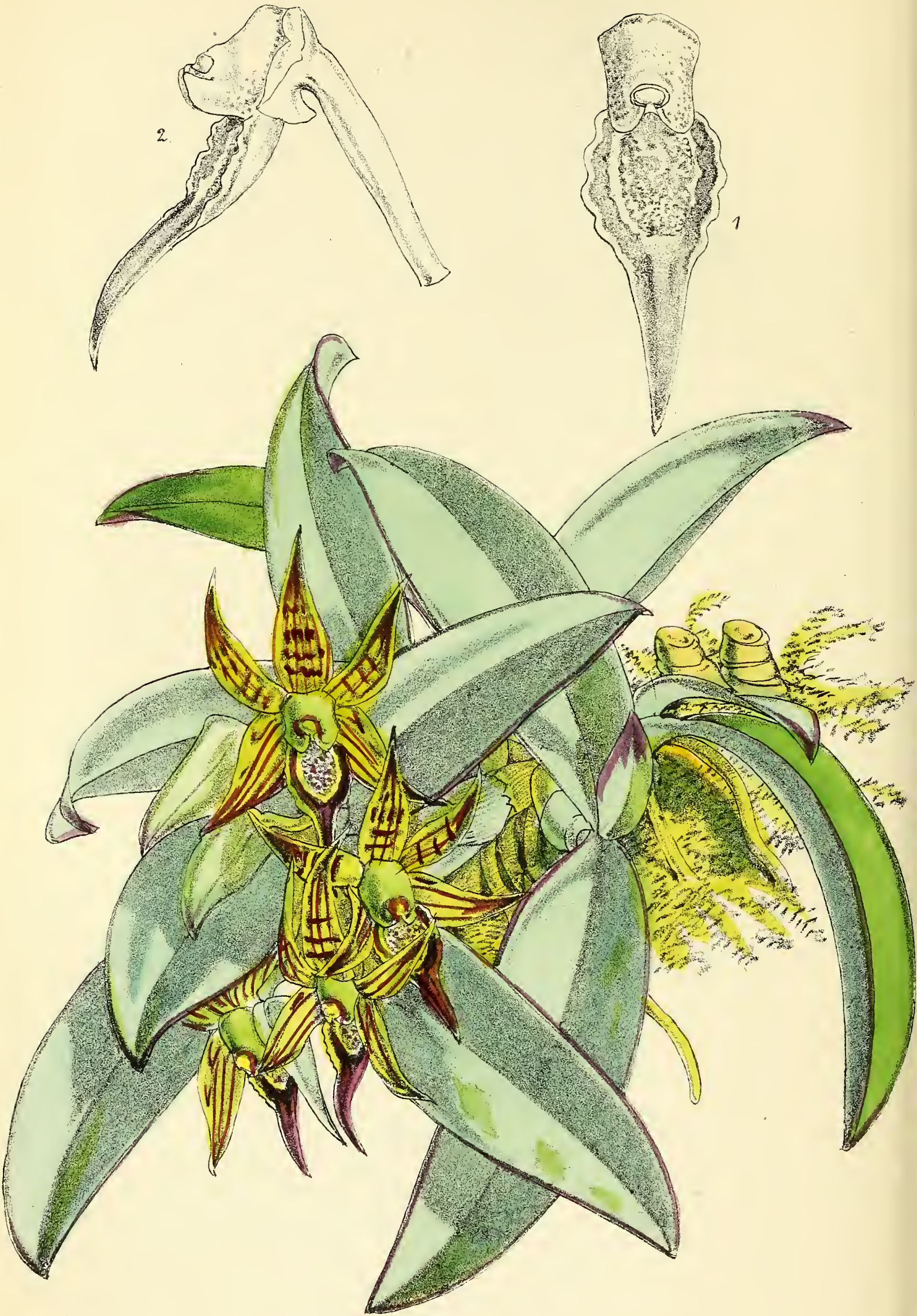
August 1st, 1877.

Himalayan journals, vol. ii. p. 48) it is called "Chokli-bi" by the natives of Sikkim, and its young flower-heads, sheathed in tender green leaves, form an excellent vegetable, and it is to this that the specific name "*oleracea*" alludes.

Descr. *Rootstock* as in the other species of the genus. *Stem* simple, suberect, attaining sometimes a height of six or eight feet, naked in the lower third, leafy from the middle up to the base of the inflorescence, flexuose and pubescent in the upper part. *Leaves* eight to fourteen, alternate, oblong, acuminate, reaching a length of six or nine inches, membranous, glabrous on the upper surface, minutely pubescent beneath, rounded at the base to a short clasping petiole, with seven or nine of the vertical veins more pronounced than the rest, the intermediate finer veins numerous and crowded, not connected by any distinctly-visible transverse veinlets. *Flowers* in a deltoid terminal panicle, which is sometimes a foot broad, and has a very pubescent and very flexuose main rachis and branches; pedicels a quarter or half an inch long, solitary, densely pubescent, ascending, or the lowest deflexed. *Bracts* minute, linear. *Perianth* campanulate, white, more or less tinged on the outside with red; segments oblong, obtuse, about a quarter of an inch long. *Stamens* less than half as long as the perianth; anthers minute, oblong; filaments linear. *Ovary* globose; style short and stout, tricuspidate at the stigmatose tip. *Berry* rose-purple, with dark spots, often with one seed perfected in each of the three cells.—*J. G. Baker.*

Fig. 1, A complete flower with its pedicel; 2, a flower, cut open:—*both magnified.*

6314.



W. Fitch del. et Lith.

Vincent Brooks Day & Son Imp

Tab. 6314.

EPIDENDRUM Sophronitis.

Nat. Ord. Orchideæ.—Tribe Epidendreæ.

Genus Epidendrum, *Linn.* (*Lindl. Fol. Orchid. Epidend.* p. 1).

Epidendrum (Hormidium) *Sophronitis ;* humilis, caule repente robusto, pseudobulbis parvis, foliis paucis sessilibus patentibus oblongo lanceolatis acutis coriaceis utrinque valde glaucis purpureo-marginatis crasse carnosis, floribus in pedunculo perbrevi crasso 2–3-floro, bracteis late ovatis acutis cucullatis valde carnosis, floribus sesquipollicaribus pallide luride viridi-luteis purpureo irroratis, sepalis ovato-lanceolatis sensim acuminatissimis dorsali recurvo lateralibus porrecto-deflexis, petalis minioribus et angustioribus recurvis, labelli ungue columnæ adnato lamina coriacea lanceolato-linguæformi lateribus ad medium usque membrana viridi undulato-crenate marginato dein subulato sordide purpureo, disco pallidiore tesselato concavo late nectarifera, columna brevi crassa conica alis crasse coriaceis rotundatis.

E. Sophronitis, *Lindl. et Reichb. f. in Gard. Chron.* 1867, p. 655. *Xen. Orchid.* p. 160, t. 167, f. 1.

This is certainly one of the most singular species of the vast genus *Epidendrum*, and few but skilled scientific Orchidologists, as Reichenbach, would venture at first sight to refer it to its proper genus, so unlike is it to any with which we are familiar in horticultural establishments. That author has, however, correctly referred it to Lindley's division *Hormidium*, characterised by the creeping rhizome, true pseudobulbs, and subsessile flowers. To it belong *E. pygmæum*, Hook (Tab. 3233), and a few other S. American species. Reichenbach states that Lindley gave to the group the name *Hormidium*, from the species of it being miserable objects, inadvertently adding that they form a group of Lindley's section *Aulizeum*, which has leafy stems and a pronged lip. Perhaps the most curious characters of *E. Sophronitis* are the broad honeyed area of the lip, and the most singular pale glaucous greenish waxy secretion that clothes both surfaces of the leaves.

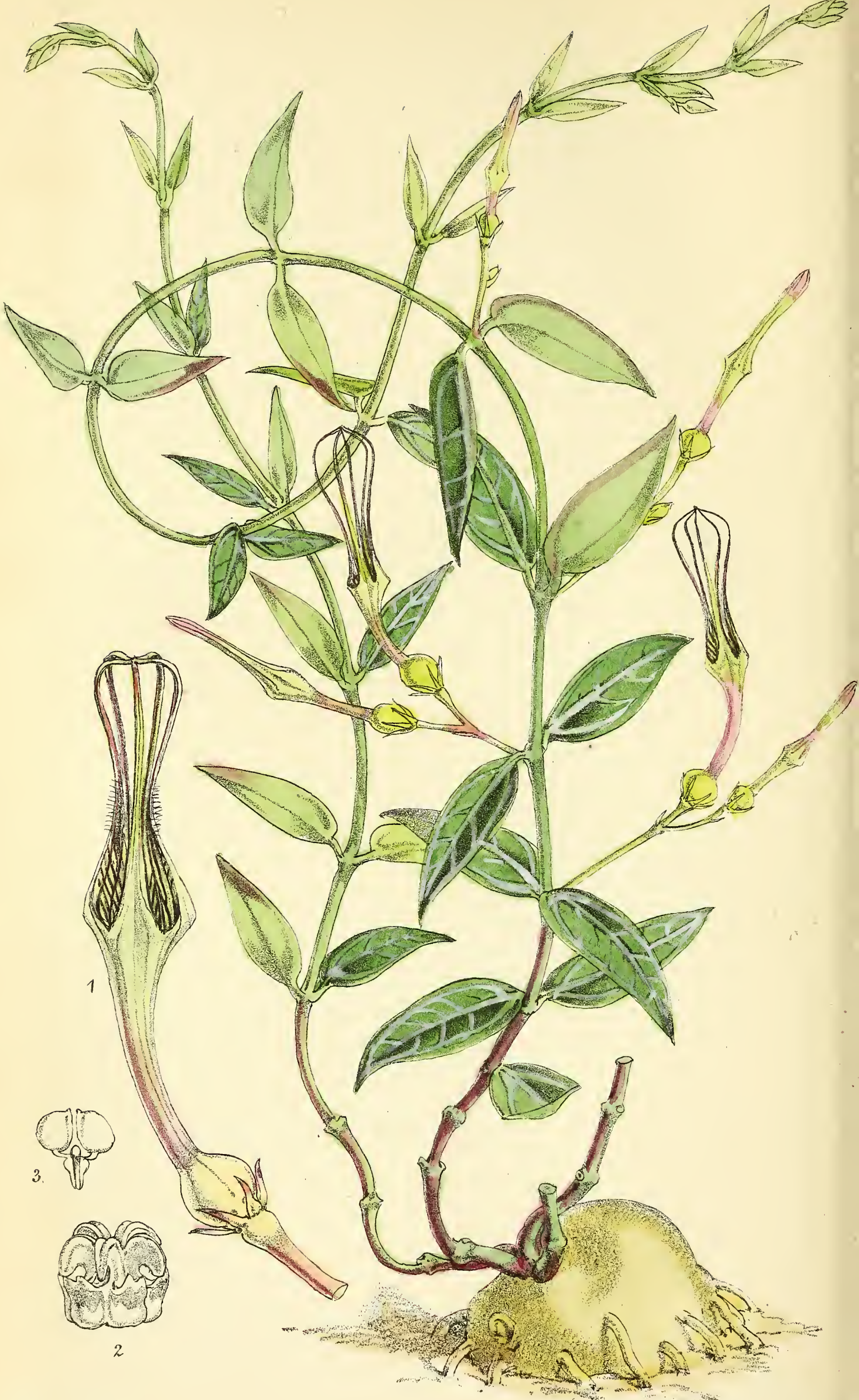
E. Sophronitis is a native of Loxa in Peru, where it has

been collected by Wallis and others; the specimen here figured flowered in the Royal Gardens in May and June of the present year, and was received from Mr. Linden.

Descr. *Rhizomes* stout, short, creeping, sending off many stout cylindric roots from its under surface. *Pseudobulbs* one half of an inch long, ovoid, green. *Leaves* two to three, at the tip of the pseudobulb, two to three inches long, spreading, oblong-lanceolate, acute, thickly coriaceous, keeled, clothed on both surfaces with a pale glaucous, green, waxy secretion, margins purple. *Flowers* two to three, on a short terminal peduncle, one and a half inch in diameter, dull yellow-green, mottled with dull violet-purple; peduncle very stout; bracts short, very coriaceous, concave, green; pedicel and ovary almost an inch long. *Sepals* ovate-lanceolate, acuminate, upper recurved, lateral, projecting forwards and downwards. *Petals* rather narrower, recurved. *Lip* with the claw adnate to the column; limb broadly ovate, then suddenly contracted to a lanceolate acuminate apex, sides of the broadest part membranous, green and waved, within this green edge is a broad purple belt, which unites with the purple tip; disc broadly nectariferous, white mottled with red-purple. *Column* short, very broadly conical, with the sides broadened into rounded coriaceous wings.—*J. D. H.*

Fig. 1, Fruit; and 2, side view of lip and column:—*enlarged.*

6315.



W. Fitch del. et Lith.
Vincent Brooks Day & Son Imp

TAB. 6315.

CEROPEGIA BARKLEYI.

Native of South Africa.

Nat. Ord. ASCLEPIADEÆ—Tribe CEROPEGIEÆ.

Genus CEROPEGIA, *Linn.* (*Benth. et Hook. f. Gen. Plant*), v. ii. p. 779.)

CEROPEGIA *Barkleyi*; rhizomate tuberoso, caule gracili ascendente simpliciusculo glabro v. pilosulo, foliis sessilibus ovato-lanceolatis acuminatis carnosis, pedunculis axillaribus gracilibus paucifloris, floribus 2-pollicaribus, pedicellis apice incrassatis, calycis segmentis acicularibus, corollæ tubo curvo basi globoso dein anguste infundibuliformi, ore dilatato, limbi lobis tubo fere æquilongis e basi triangulari filiformibus erectis medio pilosis apicibus horizontaliter incurvis connatis.

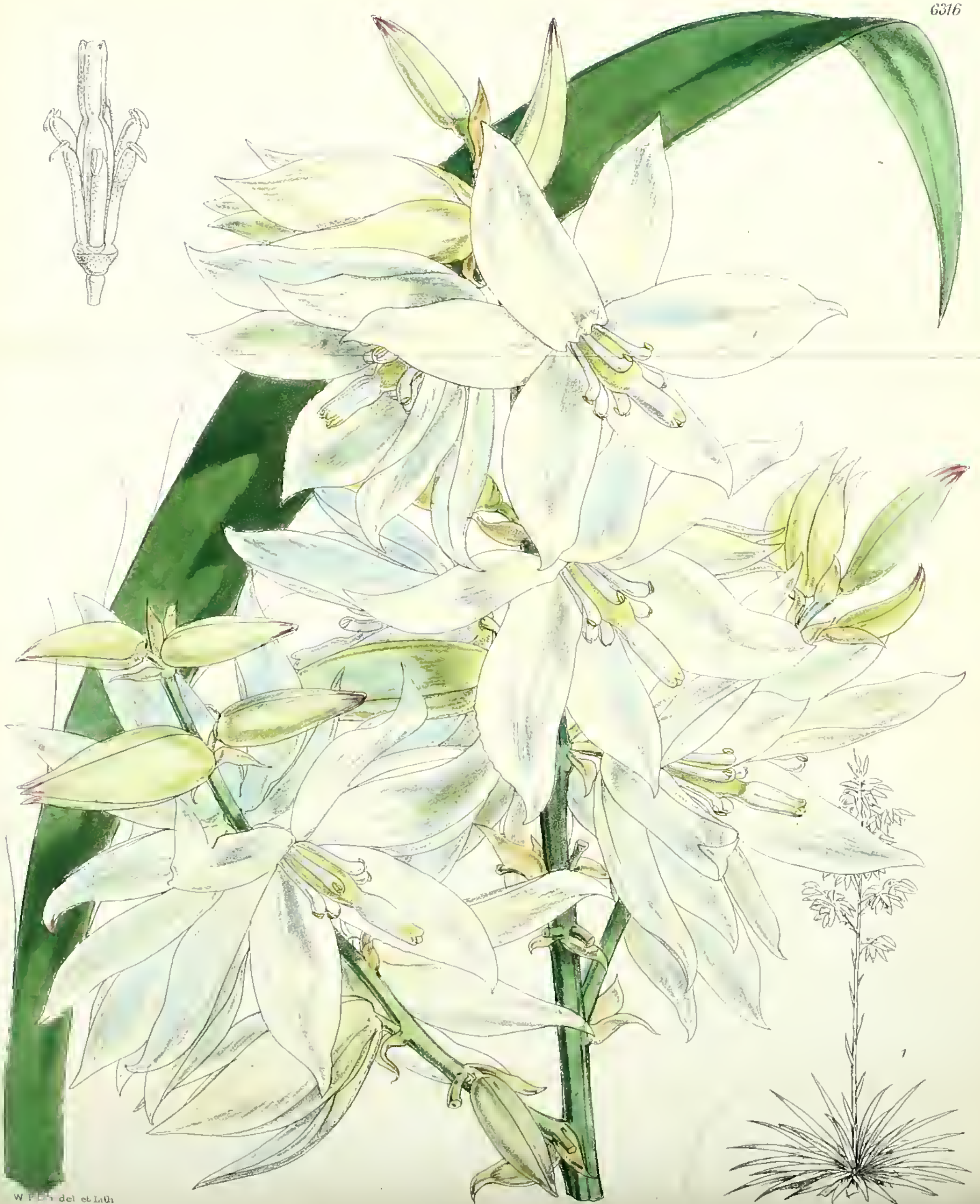
This is one of many undescribed species of *Ceropegia* which seem to abound in the dry regions of South Africa. These probably form a conspicuous feature in the flora of regions that are all but desert during a considerable portion of the year, to meet the exigences of which they are provided, some with tuberous rhizomes, others with very succulent leaves, whilst others still have fleshy leafless stems. They differ too remarkably in the structure of the corolla lobes; in the majority of them these are as in the present species slender, erect; spread first outwards and then inwards, finally meeting and cohering by their tips as in most extra-African species; in others they dilate much at the tip, and cohering by broad expansions, form a sort of parachute over the mouth of the corolla, as in *C. Sandersoni*, Tab. 5792, whilst in still others the lobes are free, clawed, and hang down loosely from the throat of the corolla, as in *C. Sororia*, (tab. 5578) and *C. Bowkeri*, (tab. 5407). It would be an interesting study for some South Africa naturalist to ascertain the significance of these three types of corolla, which in all probability represent as many modes of fertilization by insect agency. *Ceropegia Barkleyi* flowered at the Royal Gardens, Kew, in May of the present year, from tubers sent to H. E. Sir Henry Barkly, K.C.B., (late Governor of the Cape Colony), from the

Morley Mission Station in the Transkei District, by Mr. Bowker. It is allied perhaps most nearly to *C. africana*, (Bot. Reg. t. 626).

DESCR. Glabrous or hairy on the stem. *Rootstock* tuberous, fleshy, sending down stout cylindric fibres. *Stem* simple or branched from the very base, slender at first prostate, then ascending, six inches or a foot or more high, probably at times climbing, cylindric, lower nerves swollen. *Leaves* one to two inches long, opposite, sessile or very shortly petioled, ovate-lanceolated, acuminate, very fleshy, keeled below, bright green with white nerves. *Flowers* in axillary few-flowered racemes; peduncle slender, shorter than the leaves; bracts subulate; pedicels quarter to half inch long, swollen at the apex. *Calyx* segments between subulate and acicular, spreading. *Corolla* nearly two inches long; tube slightly curved, globose at the very base, then narrowly funnel-shaped, glabrous, pale pink, throat not much dilated; limb-segments triangular at the base, then narrowed into filiform processes which are first incurved, then curved slightly outwards with the tips horizontally incurved and cohering; the segments are ciliated about the middle, are pale green externally, and internally reticulated with dark purple. *Outer corona* annular, 10-toothed; inner with rounded lobes.—*J. D. H.*

Fig. 1. Flower and pedicel; 2, corona; 3, pollen masses and caudicle:—*all enlarged.*

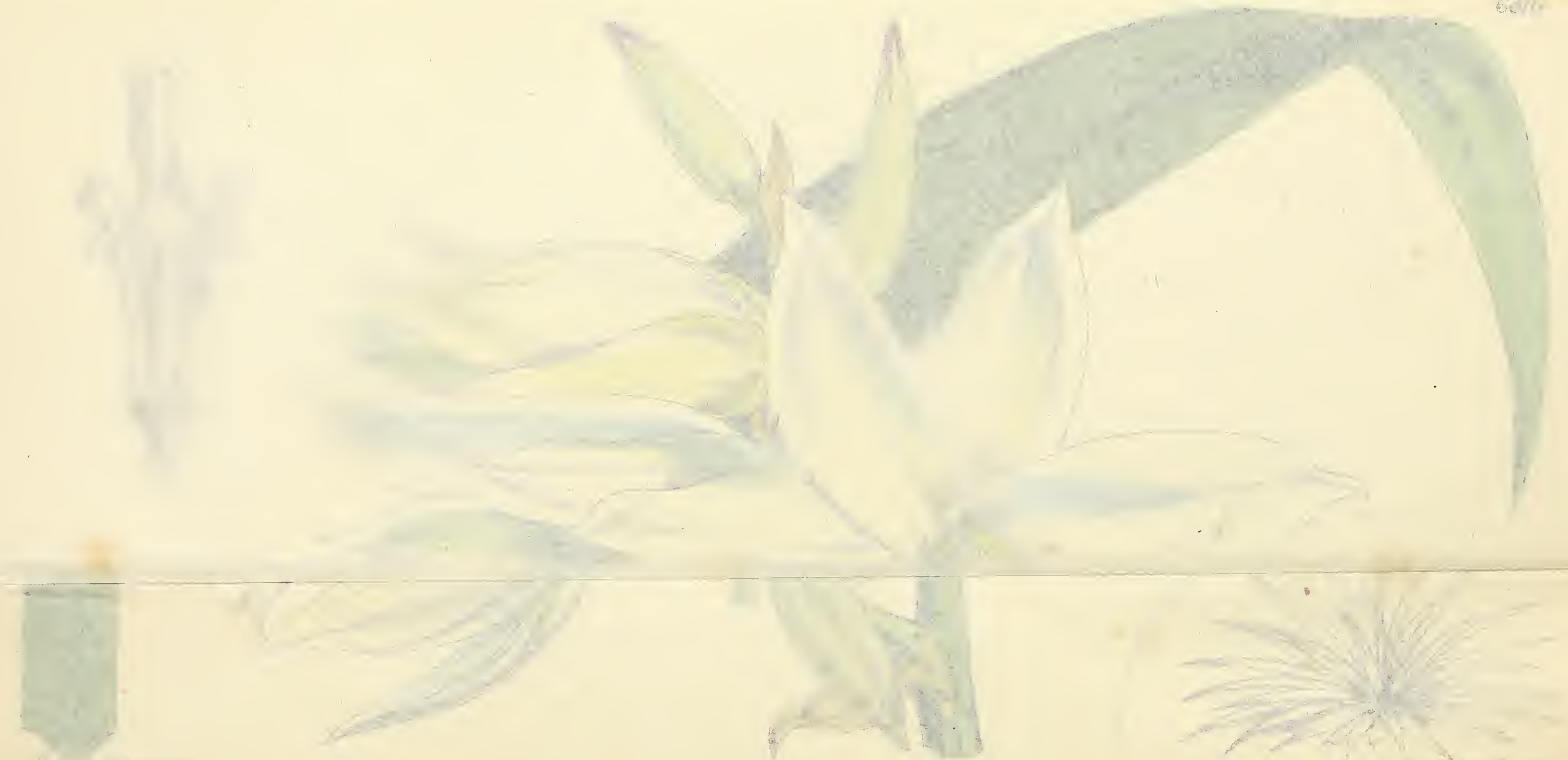
6316



W Fitch del et Lith

Vincent Brooks Day & Son Imp

[illegible]



[illegible]

Vincent Brooks, Day & Son Imp.

TAB. 6316.

YUCCA ORCHIOIDES, *var.* MAJOR.

Native of the Southern United States.

Nat. Ord. LILIACEÆ.—Tribe YUCCOIDEÆ.

Genus YUCCA, *Linn.* (*Engelmann, Monograph.*)

YUCCA *orchioides*, var. *major;* acaulis, foliis 12–15 ensiformibus chartaceis glauco-viridibus 12–15-poll. longis deorsum margine parce filamentosis, scapo puberulo pedali, paniculæ laxæ ramis brevibus erecto-patentibus, pedicellis inferioribus geminis bracteis 2–3-plo brevioribus, floribus inapertis viridulis, perianthii albidi segmentis oblongo-lanceolatis acutis 18-21 lin. longis, filamentis pilosis perianthio triplo brevioribus, stylis ovario subduplo brevioribus.

In this group of Yuccas it is very difficult to settle satisfactorily where one species ends and another begins. Of described forms the present plant comes nearest to *Y. orchioides* of Carriere, described in the 'Revue Horticole,' for 1861 at page 369 and figured at tab. 89 and 90. It differs from this by its more robust habit, branched inflorescence, longer styles and longer more acute perianth segments. It is probable that in a broad sense *orchioides* is not more than an extreme variety of *filamentosa*, and if so this should be regarded as a connecting link in the series. It was drawn from a plant which flowered in the Kew collection in July, 1875, and is perfectly hardy.

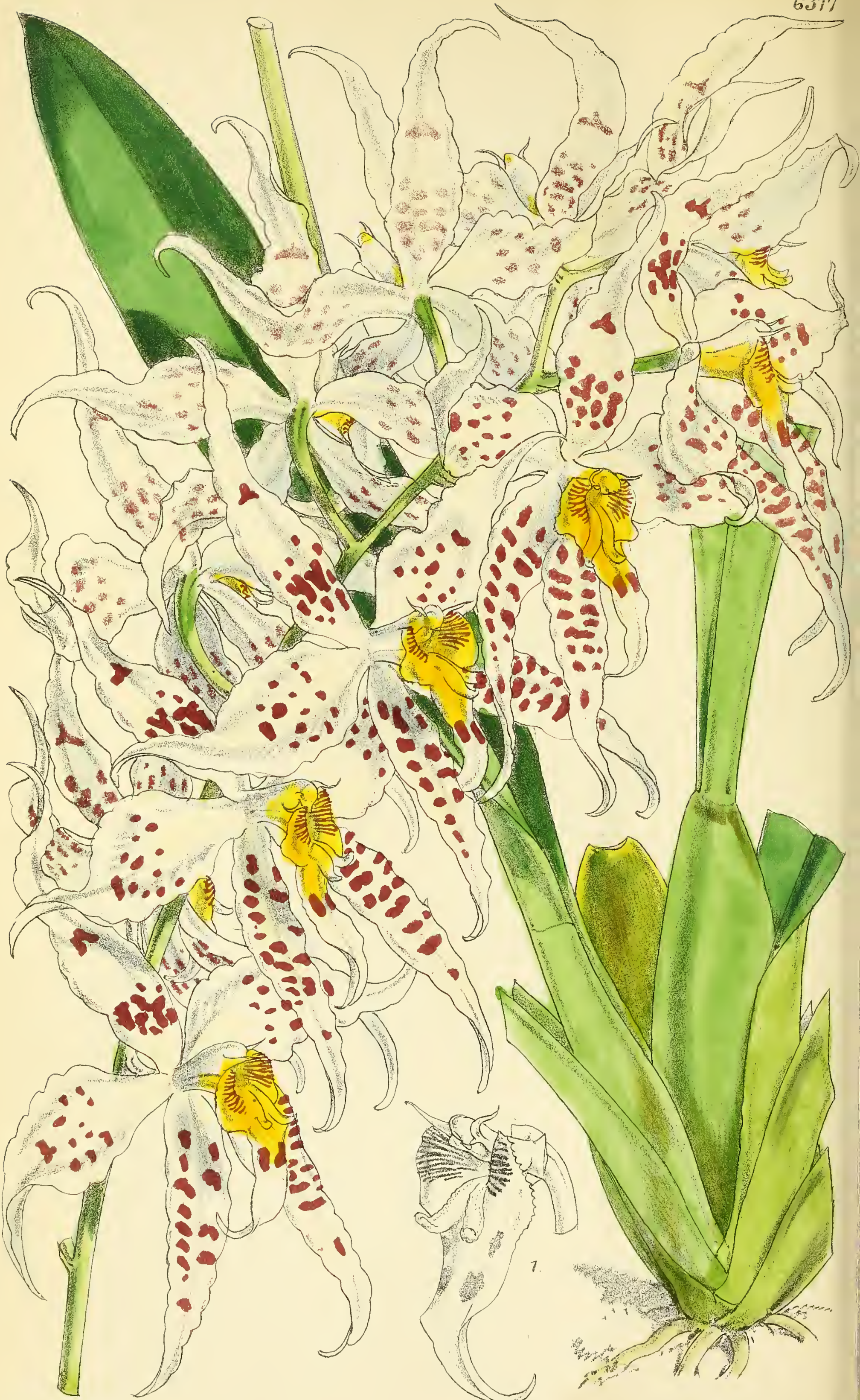
DESCR. *Leaves* twelve or fifteen in a stemless rosette, ensiform, glaucous green, chartaceous, a foot or a foot and a quarter long, an inch broad at the middle, with a few short threads splitting off from the margin in the lower half. *Scape* erect, about a foot long, with five or six erect reduced leaves. *Panicle* as long as the scape, with a densely pubescent rachis, and five or six short lax erecto-patent branches ; pedicels about a quarter of an inch long, the lower ones in pairs ; bracts membranous, lanceolate, two or three times as long as the pedicels. *Buds* tinged with

SEPTEMBER 1ST, 1877.

green. Expanded perianth milk-white, broadly campanulate, strongly scented; segments oblong-lanceolate, acute, the outer ones about half an inch and the inner ones three-quarters of an inch broad. *Stamens* a third as long as the perianth; filaments densely pubescent; anthers small, oblong. *Ovary* oblong-cylindrical, about half an inch long; styles more than half as long as the ovary.—*J. G. Baker.*

Fig. 1, The entire plant, *much reduced;* 2, the stamens and pistil, *magnified.*

6317



W Fitch del et Lith.

Vincent Brooks Day & Son Imp

TAB. 6317.

ODONTOGLOSSUM CIRRHOSUM.

Native of Ecuador.

Nat. Ord. ORCHIDEÆ.—Tribe VANDEÆ.

Genus ODONTOGLOSSUM, *H. B. & K.* (*Lindl. Fol. Orchid. Odontoglossum*).

ODONTOGLOSSUM (Eudontoglossum) *cirrhosum*; pseudobulbis oblongo-lanceolatis compressis ancipitibus ecostatis foliis lineari-lanceolatis acutis, scapis subacutis folia superantibus, paniculis nutantibus, bracteis triangulari-subulatis, floribus 3 poll. diam. albis maculis parvis brunneis sparsis, sepalis petalisque paulo latioribus consimilibus lanceolatis cirrhosi-acuminatis undulatis, labelli elongati lobis lateralibus brevius latioribus quam longis aureis rubro-lineatis intermedio elongato-lanceolato cirrhoso-acuminato basi aureo dein albo maculis 2-brunneis, disco 2-cornuto columna apice bicirrhosa.

O. cirrhosum, *Lindl. Gen. & Sp. Orchid.* p. 211; *Fol. Orchid. Odont.* p. 3; *Reichb. f. in Walp. Ann.* vi. 827, *et in Gard. Chron.* 1876, p. 503 *cum Ic. Xylog.* 91, 92.

This beautiful plant was discovered in the the Eucadorean Andes in the valley of Mindo, at an elevation of 6000 feet, by the late Col. Hall, who sent dried specimen to Sir W. Hooker that were imperfectly described by Dr. Lindley, and it has since been gathered in the same locality by his fellow explorer of the Andes, Dr. Jameson, and others. Subsequently, but not till many years after its discovery, it has been fully discribed by Prof. Reichenbach in the 'Gardeners' Chronicle,' with two figures, one of the whole plant reduced, the other of a portion of a panicle with about fifteen flowers of the natural size. As a species its nearest allies are *O. Hallii* and *inter-purpureum*, both natives of the Andes, but it is abundantly distinct from these and all other species.

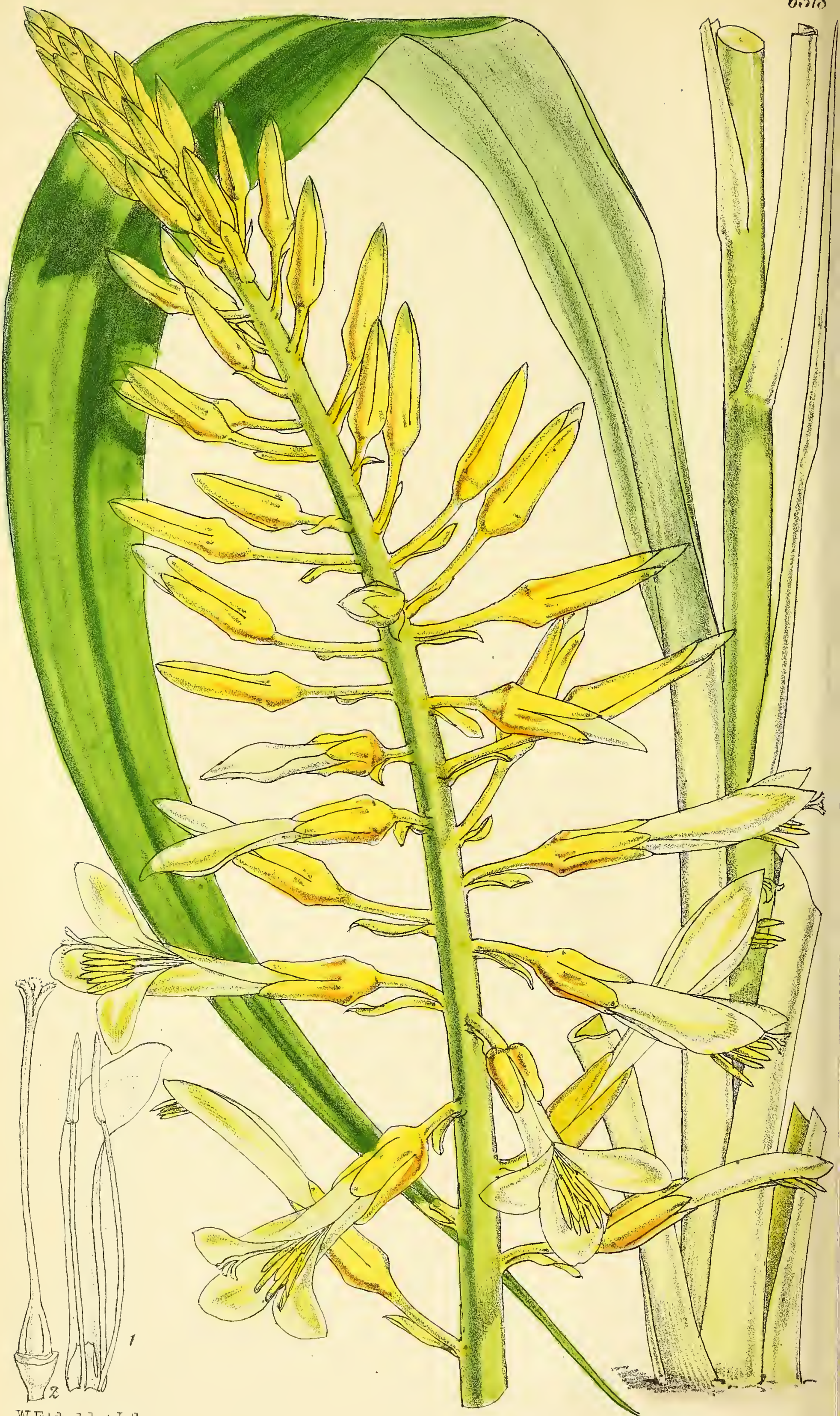
Since its importation by the Messrs. Klaboch, *O. cirrhosum* has flowered with many collectors, amongst the first of whom, I believe, is Sir Trevor Laurence, Bart., whose gardener, Mr. Spyers, informed Dr. Reichenbach that thirty flowers might be produced on a single panicle.

SEPTEMBER 1ST, 1877.

Descr. *Pseudobulbs* oblong-lanceolate, compressed, two-edged, two to three inches long, pale green, not grooved or striate. *Leaves* four to six inches long, linear-ensiform, acute, nearly flat, coriaceous. *Scape* much longer than the leaves, slender, bearing a many-flowered drooping or inclined panicle; bracts minute, triangular. *Flowers* three inches across the petals, milk-white with brown blotches on the petals sepals and mid-lobe of the lip; lateral lobes and base of the lip golden yellow, the former with red stripes. *Sepals* narrow lanceolate, ending in recurved subcirrhose points, undulate. *Petals* broader, otherwise similar, distinctly clawed. *Lip* about two-thirds the length of the petals, narrowly convolute at the base, then expanding into two ciliate lateral lobes, and contracting into a lanceolate tongue-shaped recurved acuminate undulate mid-lobe; disk with two ascending prominent yellow horns. *Column* short trigonous, with two spreading cirrhi at the apex.—*J. D. H.*

Fig. 1, Lip and column, *enlarged.*

6318



W Fitch del et Lith

Vincent Brooks Day & Son Imp

TAB. 6318.

PITCAIRNIA FLAVESCENS.

Native of Topical America.

Nat. Ord. BROMELIACEÆ.—Tribe PITCAIRNIEÆ.

Genus PITCAIRNIA, *L'Herit.* (*K. Koch in Walp. Ann.* vol. vi. p. 78.)

PITCAIRNIA *flavescens;* acaulis, foliis circiter 20 dense rosulatis lorato-lanceolatis tenuiter chartaceis 2–3-pedalibus facie viridibus dorso albidis aculeis marginalibus nullis, scapo sesquipedali tenuiter floccoso foliis 3–4-valde reductis, linearibus bracteato, racemo laxo subpedali, pedicellis patulis petalis 2–3-plo brevioribus bracteis lanceolatis longioribus, ovario basi distincte immerso, sepalis coriaceis lanceolatis nudis petalis lingulatis pallide luteis basi squamatis subtriplo brevioribus, genitalibus petalis æquilongis.

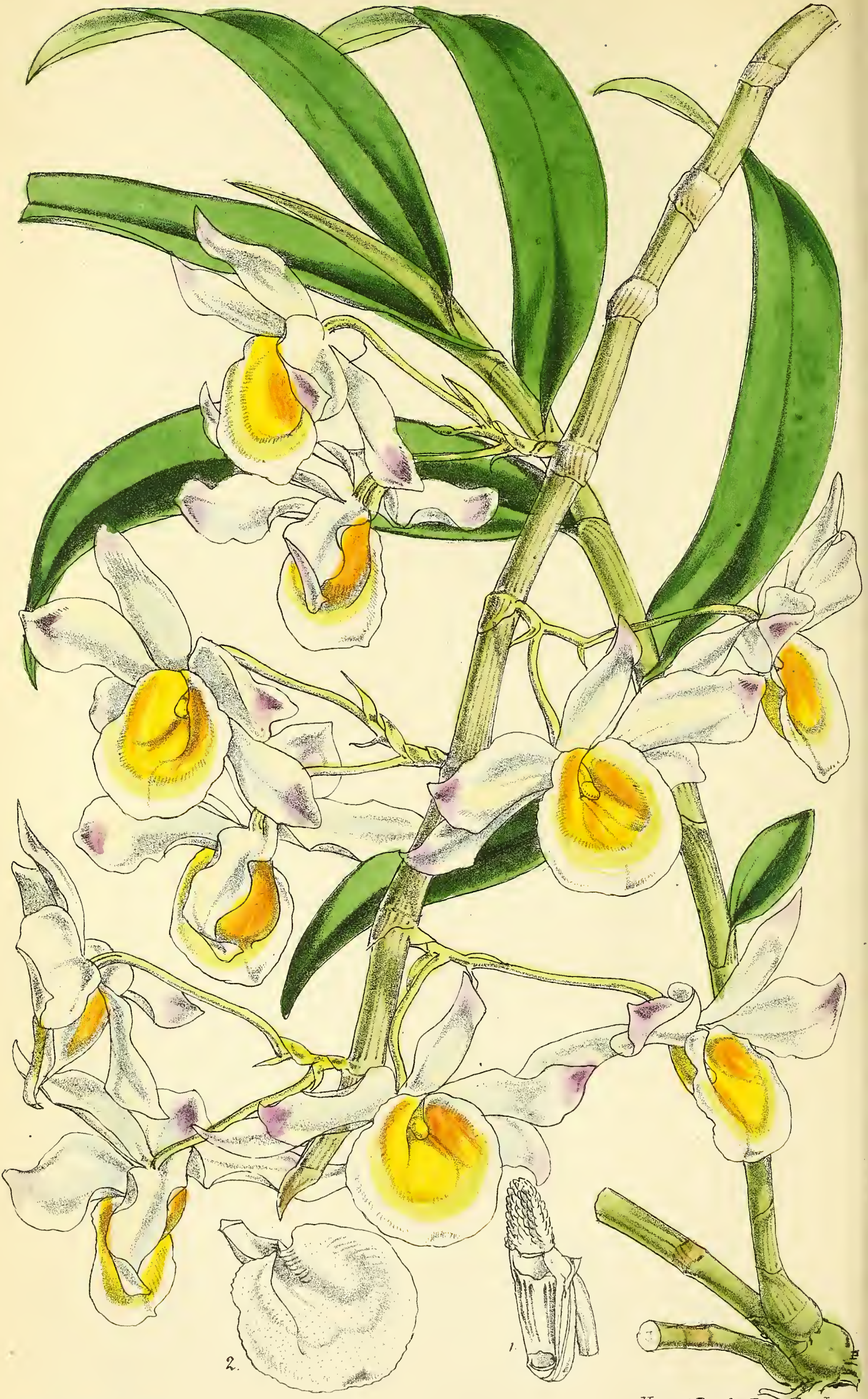
COCHLIOPETALUM flavescens, *Beer, Die Famil. der Bromel.* p. 69.

This is a fine plant, which has been known in cultivation for several years, but which has never been figured or even fully described. Its nearest ally is *P. albiflos*, Herbert in Bot. Mag. t. 2642, (*Cochliopetalum albiflos*, Beer), but this has milk-white flowers and narrower leaves, green on the underside. By Karl Koch, in his monograph of this large and intricate genus above cited, it is placed doubtfully under *P. odorata*, Regel in Gartenflora, tab. 114, (*Cochliopetalum Schuchii*, Beer), but this also is a plant with milk-white petals and leaves green on both surfaces. Its precise country is not known, and I have looked for it in vain amongst the wild specimens of *Pitcairnia* in the London herbaria. Our drawing was made from a plant that flowered in the Palm Stove at Kew in April of this present year.

DESCR. Acaulescent. *Leaves* about twenty in a dense rosette, linear-lorate, two to three feet long, an inch or an inch and a quarter broad at the middle, narrowed to the point and downwards to a channelled haft three or four lines broad, not a proper petiole, bright green on the face, white furfuraceous all over the under surface, entirely without marginal prickles. *Scape* a foot and a half long, slightly floccose, bracteated by three or four reduced linear leaves. *Raceme* lax, simple, about a foot long and half a foot broad when fully expanded; most of the pedicels patent, the lower ones half or three-quarters of an inch long; bracts lanceolate, a quarter or half an inch long. *Calyx-tube* obconical, a quarter of an inch long, adnate to the ovary; segments lanceolate, naked, coriaceous, yellowish, three-quarters of an inch long. *Petals* primrose-yellow, lingulate, obtuse, two inches long, with a toothed oblong scale at the base. *Stamens and style* about as long as the petals; anthers lemon-yellow, linear, basifixed, nearly half an inch long. *Stigmas* strongly twisted spirally.—*J. G. Baker.*

Fig. 1, Petals, shewing the scale at the base, and a couple of stamens; fig. 2, pistil:—*both slightly magnified.*

6319



W. Fitch del et Lith.

Vincent Brooks Day & Son Imp

Tab. 6319.

DENDROBIUM crystallinum.

Native of Birma.

Nat. Ord. Orchideæ.—Tribe Dendrobieæ.

Genus Dendrobium, *Swartz.* (*Lindl. Gen. et Sp. Orchid.* p. 74.)

Dendrobium (Eudendrobium) *crystallinum;* caule tereti crassiusculo, vaginis membranaceis pellucidis arcte appressis striatis tecto, foliis distichis lineari-lanceolatis acuminatis membranaceis, racemis ad nodos brevibus 2-floris, pedunculo perbrevi, bracteis ovato-lanceolatis, floribus 2-poll. diametro, albis apicibus foliolorum roseis labellique disco aureo, sepalis petalisque ovato-lanceolatis patentissimis marginibus recurvo-undulatis, labello orbiculato breviter unguiculato, lamina explanata marginibus basin versus inflexis centro disci et ungue pilosulis, mento obtuso, columna brevissima, anthera elongata obtusa, papillis crystallinis operta.

D. crystallinum. *Rchb. f. in Gard. Chron.* 1868, p. 572; *Xen. Orchid.* vol. ii. p. 210, tab. 193, *f.* I.

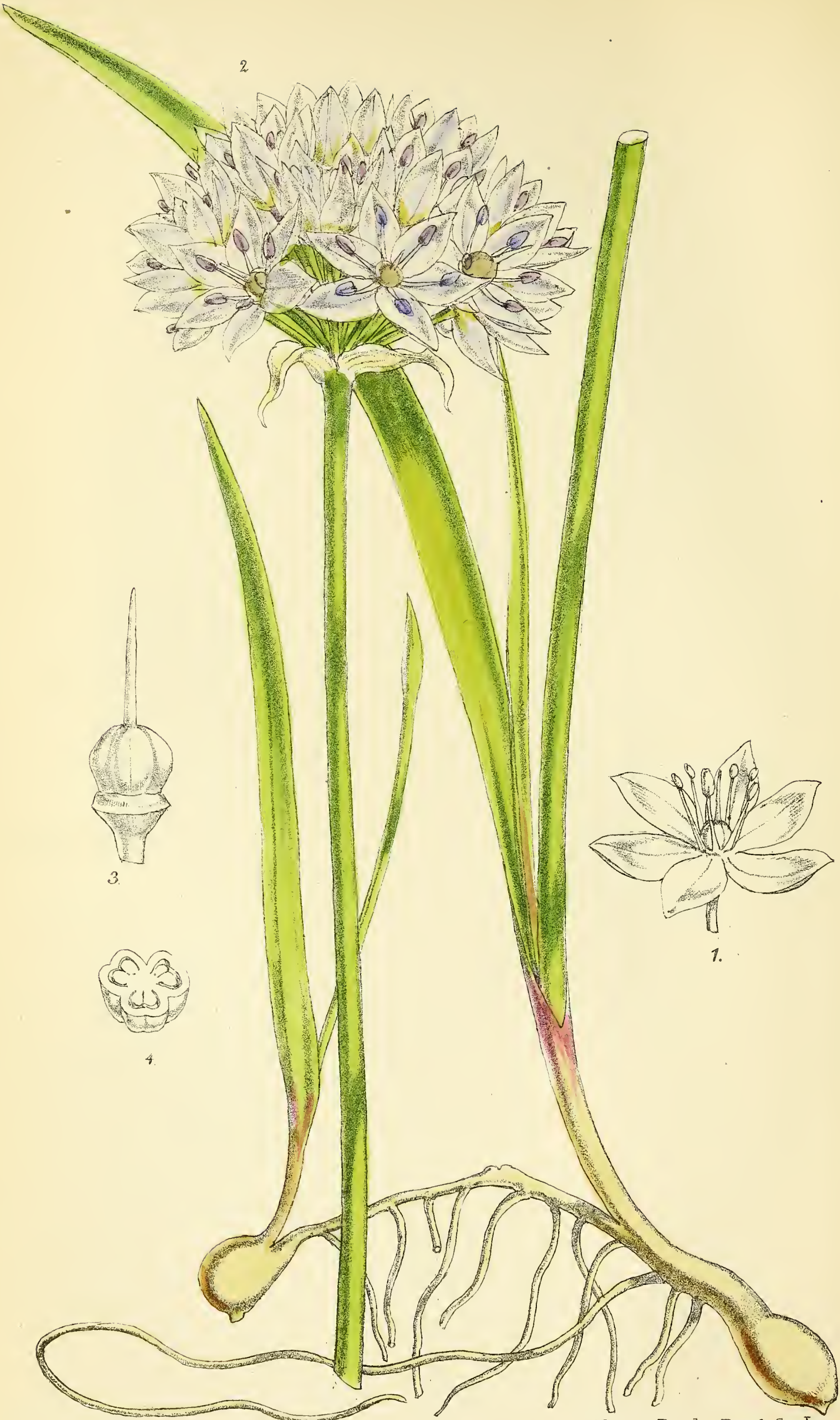
This is another of the beautiful Dendrobes, with which British Birma abounds, and for which Horticulturalists are under lasting obligations to the indefatigable exertions of Col. Benson, and the Rev. C. Parish. It belongs to the same group of the genus, called *Eudendrobium* by Lindley, to which the well-known *D. Pierardi*, and *transparens* belong, together with *D. Bensoniæ*, *Wardianum,* and some twenty other Indian species. Prof. Reichenbach, who first published it about 10 years ago, spoke then with confidence of its distinctness, and there is no reason to doubt the correctness of his decision, though it must be confessed that the number of Birmese species and the very close relationship of many of them, suggests the possibility of hybridisation or great variation. A glance at the figure of *D. Bensoniæ* (tab. 5679), and the remarks made under it, illustrate this point. From all its congeners, however, *E. crystallinum* may be distinguished by the shape of its elongated anther-case, which is covered with very prominent crystalline papillæ.

september 1st, 1877.

D. *crystallinum* was discovered by Col. Benson, F.L.S. in Birma, and introduced by Messrs. Veitch, who first flowered it. The Royal Gardens are indebted to Messrs. Low for a fine specimen of it, which flowered freely, and the drawing was made from a plant in Mr. Bull's nursery in June, 1874.

Descr. *Stems* tufted, terete, slightly flexuous, grooved, one third of an inch and upwards in diameter, a foot or more long, internodes about an inch long; clothed with closely appressed membranous striate pellucid sheaths, the rounded tops of which project about one quarter of an inch beyond the nodes. *Leaves* on flowerless stems, distichous, four to six inches long, linear-lanceolate, acuminate, membranous, bright pale-green. *Flowers* in pairs on very short peduncles from all the upper nodes, two inches in diameter; bracts one quarter of an inch long, lanceolate; pedicels slender, nearly an inch long; ovary small. *Sepals* and *Petals* spreading widely, white, with pale rose blotches at the tip, margins somewhat waved and recurved; sepals linear-oblong, acute; petals broader, more obovate, and obtuser. *Lip* with a short convolute claw and circular expanded limb, which is inflexed at the base forming two auricles, margin ciliolate, surface finely furred, golden-yellow, with a small, pale, rose-coloured blotch at the rounded tip. *Column* very short; anther-case longer than the column, oblong-cylindric, obtuse, clothed with crystalline papillæ.—*J. D. H.*

Fig. 1, Column and anther-case:—*enlarged.*



W Fitch del et Lith.

Vincent Brooks Day & Son Imp

TAB. 6320.

ALLIUM UNIFOLIUM.

Native of California.

Nat. Ord. LILIACEÆ.—Tribe ALLIEÆ.

Genus ALLIUM, *Linn.* (*Regel, Alliorum Monographia: St. Petersburg,* 1875.)

ALLIUM *unifolium;* bulbis parvis longe rhizomatosis tunicis albidis membranaceis, foliis linearibus glabris scapo brevioribus solitariis vel paucis, scapo tereti 1–2-pedali, umbellis densis 20–30-floris, spathæ valvis duabus lanceolato-deltoideis pedicellis subæquilongis, pedicellis 9–12 lin. longis, perianthii rubri segmentis ovato-lanceolatis acutis 5–6 lin. longis flore expanso patulis, staminibus perianthio distincte brevioribus, filamentis subulatis conformibus, stylo elongato, ovulis in loculo geminis collateralibus erectis.

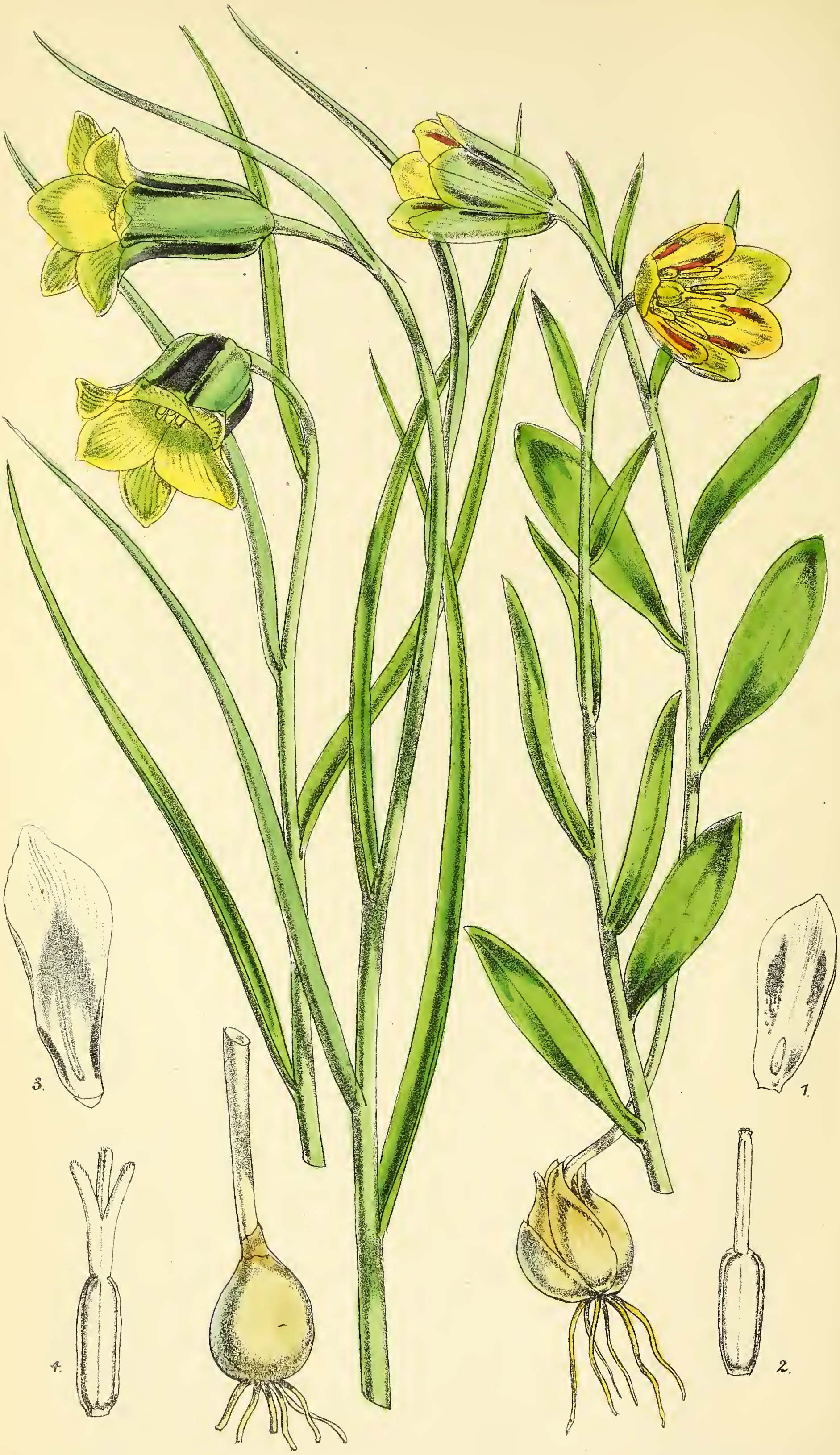
A. unifolium, *Kellogg in Proc. Calif. Acad.* vol. ii. p. 112, tab. 35; *S. Wats. in Bot.* 40 *Parall,* p. 486, tab. 36, fig. 9–10; *Regel, Alliorum Monog.* p. 146.

This is one of several handsome new *Alliums* which have lately been discovered in California. It is found in the vicinity of Oakland, and about the bay of San Francisco. It was first named and described by Dr. Kellogg in 1861. It was afterwards found that name was not an appropriate one, the number of leaves not being a constant character. Of well-known old-world types it is most like *Allium roseum* in the flowers, but its underground structure is quite unique in this very large genus, so far as known, the bulbs being developed some distance from one another, and connected by a thread-like rhizome, like that of *Lilium canadense.* Our drawing was made from specimens which flowered with Messrs. Backhouse and Son at Holgate, near York, in July, 1873.

DESCR. Bulbs small, ovoid, connected by a filiform rhizome; outer tunics whitish, membranous, marked with fine parallel anastomosing waved lines. *Leaves* one, two or more, linear, glabrous, shorter than the scape, a foot or less long, a sixth to a quarter of an inch broad. *Scape* erect, terete, one or two feet long; umbel dense, 20–30-flowered, about two inches in diameter; pedicels nine to twelve lines long; spathe-valves lanceolate-deltoid, about as long as the pedicels. *Perianth* mauve-pink, rotate when fully expanded; segments ovate-lanceolate, acute, five or six lines long. *Stamens* rather shorter than the perianth-segments; filaments all alike, subulate; anthers small, oblong. *Ovary* depresso-globose, deeply three-lobed. *Style* a quarter of an inch long; ovules two in each cell, basal, collateral, erect.—*J. G. Baker*.

Fig. 1, An open flower, *natural size;* 2, a single stamen; 3, the pistil: 4, vertical section of ovary:—*all three magnified.*

6321.



W Fitch del et Lith

Vincent Brooks Day & Son Imp

Tab. 6321.

FRITILLARIA DASYPHYLLA.

FRITILLARIA ACMOPETALA.

Natives of Asia Minor.

Nat. Ord. Liliaceæ.—Tribe Tulipeæ.

Genus Fritillaria, *Linn.* (*Baker in Journ. Soc. Linn.*, vol. xiv. p. 251.)

Fritillaria (Amblirion) *dasyphylla ;* bulbo parvo globoso tunicis pallidis, caule 4–9-pollicari sæpissime unifloro, foliis 6–12 viridibus omnibus sparsis vel infimis et supremis oppositis, inferioribus oblongo-oblanceolatis subobtusis, superioribus lanceolatis vel linearibus acutis, perianthii infundibularis segmentis obovato-oblongis obtusis extus purpureis intus luteis haud tessellatis foveolâ parva oblonga viridi supra basin præditis, staminibus perianthio subduplo vel triente brevioribus, antheris filamento puberulo duplo brevioribus, stylo integro ovario æquilongo, stigmate capitato.

F. dasyphylla, *Baker in Gard. Chron.* 1875, pt. 1, p. 653.

F. tulipifolia *var.* dasyphylla, *Baker in Journ. Linn. Soc.* vol. xiv., p. 266.

Fritillaria (Monocodon) *acmopetala ;* bulbo parvo globoso tunicis pallidis caule pedali vel sesquipedali unifloro, foliis 5–6 glauco-viridibus omnibus sparsis linearibus, perianthii campanulati segmentis obovato-oblongis obtusis viridulis haud tesselatis dorso et apice plus minusve purpureo suffusis supra basin foveolâ parva oblonga viridi præditis, staminibus perianthio subtriplo brevioribus antheris filamento puberulo duplo brevioribus, stylo supra medium trifurcato ramis subulatis.

F. acmopetala, *Boiss. Diag.* pt. vii. p. 104; *Walp. Ann.* vol. i. p. 851; *Baker in Journ. Linn. Soc.*, vol. xiv., p. 262; *Gard. Chron.* 1875, pt. 1, p. 620.

F. lycia, *Boiss. and Held. in Boiss. Diagn.*, pt. 13, p. 20.

These are two Fritillaries of which living plants have lately been brought for the first time from Asia Minor by Mr. Elwes, and liberally distributed. *F. dasyphylla* is a dwarf species, first gathered by Professor Edward Forbes, which belongs to the section with an entire style, and resembles in general habit *F. tulipifolia* of the Caucasus, figured Bot. Mag. tab. 5969. *F. acmopetala*, on the contrary, is a tall-growing plant, closely allied to *F. pyrenaica*, but with very different leaves. Both are plants of the mountains

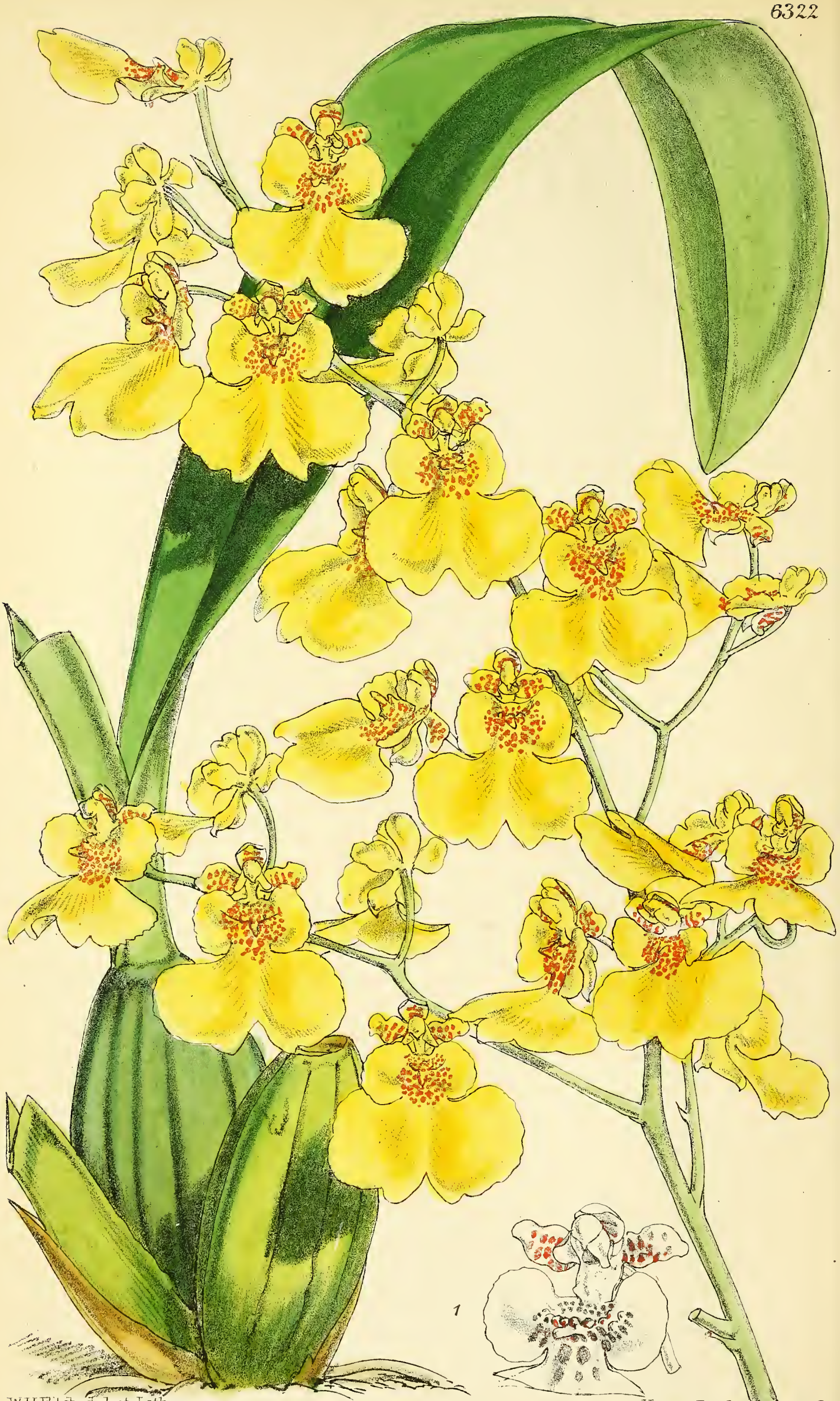
and perfectly hardy. *F. dasyphylla* was gathered by Mr. Elwes in light sandy soil over serpentine between Moolah and Aidin, at an elevation of two thousand feet above sea-level, and *F. acmopetala* in rocky woods in Caria.

Descr. *F. dasyphylla.* Bulb globose, under half an inch in diameter, with pale membranous tunics. *Stem* rising four to nine inches above the surface of the ground, one- rarely two-flowered, bearing six to twelve rather fleshy green leaves, all alternate or the lowest and sometimes the uppermost opposite, the lowest oblanceolate-oblong, subobtuse, two or three inches long, the others lanceolate and linear. *Flowers* more or less drooping. *Perianth* broadly funnel-shaped, three-quarters or seven-eighths of an inch long, the segments purplish on the back, yellow without any tessellations inside, with a small green oblong foveole above the base. *Stamens* three-eighths or half an inch long; filament flattened, pubescent; anther oblong. *Style* a quarter or three-eighths of an inch long, entire.

F. acmopetala. Bulb small, globose, with pale tunics. Primordial radical leaves oblong, two or three inches long, narrowed to a petiole as long as the blade. *Stem* above a foot long, slender, glaucous, one-flowered. *Leaves* five or six, rather glaucous, all alternate, linear, three or four inches long. *Flowers* drooping. *Perianth* campanulate, fifteen or eighteen lines long, the obovate-oblong obtuse segments more or less flushed with purple on the back and tip, for the rest greenish, without any tessellation, furnished with a small oblong greenish foveole above the base. *Stamens* less than half as long as the perianth; anthers linear-oblong, cuspidate, half as long as the pubescent filaments. *Style* half an inch long, with three subulate forks reaching nearly halfway down.—*J. G. Baker.*

Fig. 1, segment of the perianth of *F. dasyphylla;* fig. 2, pistil of the same; fig. 3, segment of the perianth of *F. acmopetala;* fig. 4, pistil of the same:—*all more or less magnified.*

6322



W.H.Fitch del et Lith.

Vincent Brooks Day & Son Imp

TAB. 6322.

ONCIDIUM EUXANTHINUM.

Native of Brazil.

Nat. Ord. ORCHIDEÆ.—Tribe VANDEÆ.

Genus ONCIDIUM, *Swartz*, (*Lindl. Fol. Orchid. Oncidium*).

ONCIDIUM (Micropetala) *euxanthinum*; pseudobulbis ellipsoideis compressis canaliculatis, foliis binis lineari-ensiformibus acutis acute carinatis, panicula ampla ramosa, bracteis triangulari-subulatis, floribus 1-poll. diam. aureis disco rubro-maculato, sepalo dorsali columna vix longiore cucullata, lateralibus parvis acutis connatis, petalis paulo longioribus oblongis obtusis undulatis, labelli trilobi ungue brevi porrecto lobis lateralibus sessilibus rotundatis crenatis intermedio maximo subreniforme bilobo sinu acuto, callo inter lobos antice multilobulato, postice in cornu porrecto, columna brevi alis lobulatis.

O. Euxanthinum, *Reichb. f. in Gard. Chron.* 1869, p. 1158.

A member of a small group of chiefly Brazilian Oncidia, of which the first described species is *O. bifolium*, Sims, (Tab. nostr. 1491), a native of the Brazils, which differs in the racemose flowers, much smaller broadly obovoid pseudo-bulbs, and shorter leaves. It is even nearer the *O. martianum* var. *bicolor*, Lindl. (*O. bicolor*, Lindl. in Bot. Reg. 1847, t. 66) in the racemose flowers, but that species has a solitary broad leaf, and very much narrower lateral lobes of the lip. Dr. Reichenbach, who has kindly verified the name for me, describes the flowers of the original specimen as having greenish sepals and petals with brownish bars, but those of the specimen here figured are of the same clear yellow as the lip, and the spots on the latter are of a clear red hue. The warts etc. of the lip are not only variable in this genus, but most difficult to describe; in the present species they occupy a narrow area on the disk, and consist principally of a transverse row of tubercles and a prominent but small conical horn.

O. euxanthinum is a native of Brazil, whence it was im-

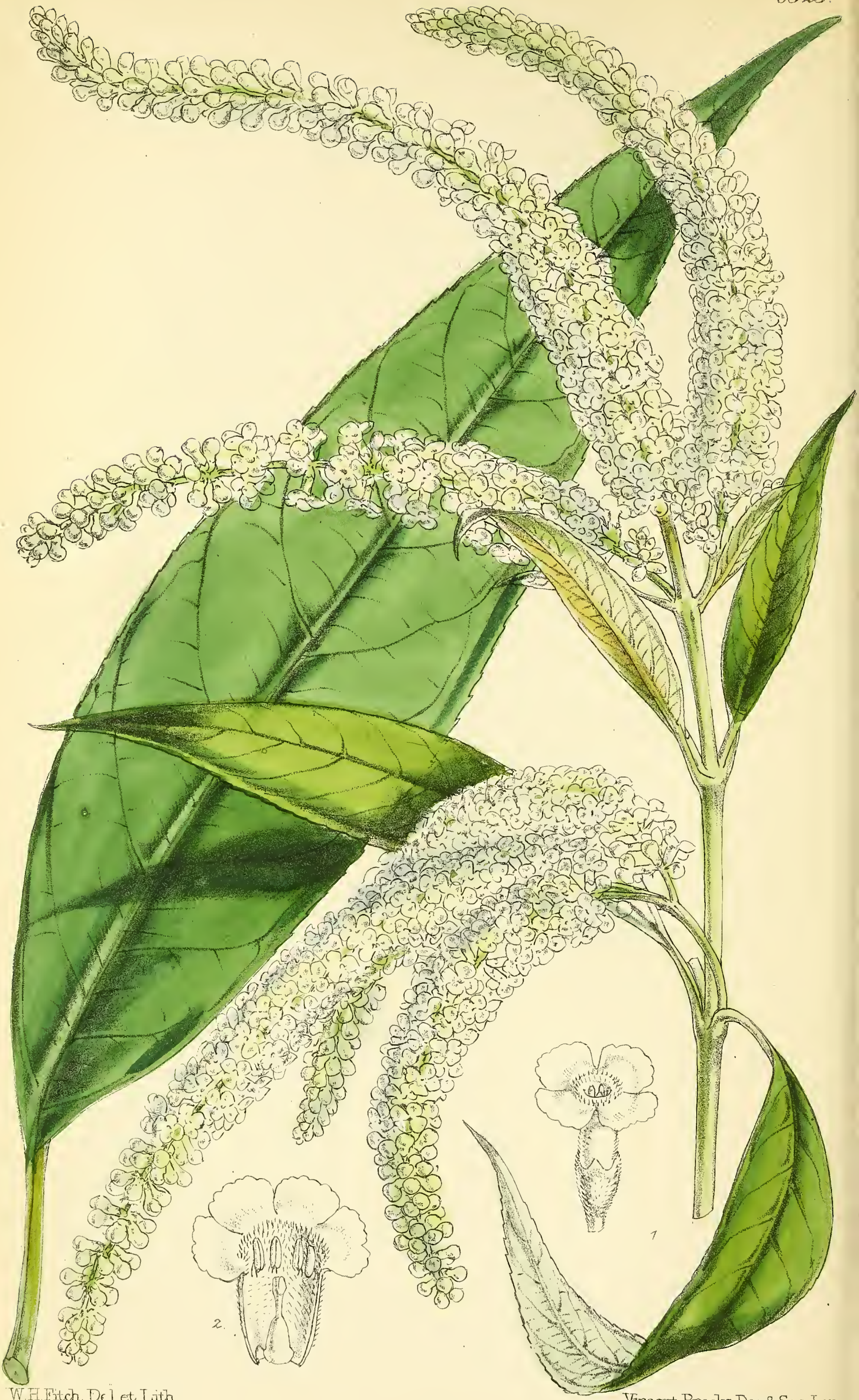
OCTOBER 1ST, 1877.

ported by Messrs. Veitch, who sent the specimen represented here in November, 1871.

Descr. *Pseudobulbs* two to three inches long, ellipsoid, flattened, channelled. *Leaves* two, eight to ten inches long, linear-ensiform, acute, not narrowed into a petiole keeled especially towards the base, coriaceous, bright green. *Scape* slender, drooping, with the broad spreading many-flowered panicle longer than the leaves; branches slender, green, flexuose; bracts minute, ovate-subulate. *Flowers* about an inch in diameter across the lip, bright golden yellow with red dots on the disk of the lip, and bars across the sepals and petals, which latter are very small compared with the lip. *Dorsal sepal* one-sixth of an inch long, obovate, obtuse, hooded, arching over the column; lateral sepals united into an obovate bifid body with acute lobes placed under the lip. *Petals* rather longer than the sepals, oblong, spreading undulate. *Lip* very large, shortly clawed, the claw protruded and winged, 3-lobed; lateral lobes many orbicular, sessile, crenate, flat; mid-lobe reniform, much broader than long, bifid with an acute sinus, margins waved; disk with several warts in a transverse line, and a prominent horn, besides other smaller warts in irregular series. *Column* short, with coriaceous rounded wings.—*J. D. H.*

Fig. 1, Flower with midlobe of lip cut away :—*enlarged.*

6323.



W. H. Fitch. Del et Lith.

Vincent Brooks, Day & Son, Imp.

Tab. 6323.

BUDDLEIA asiatica.

Native of the East Indies.

Nat. Ord. Loganiaceæ.—Tribe Euloganiæ.

Genus Buddleia, *Linn.* (*Benth. et Hook. f. Gen. Plant.* vol. ii. p. 793.)

Buddleia (Neemda) *asiatica;* arborea, albo- v. ferrugineo-tomentosa, foliis breviter petiolatis lanceolatis v. elongato-lanceolatis acuminatis integerrimis v. serrulatis supra glabris, floribus parvis albis in racemos elongatos graciles axillares et terminales nutantes dispositis, solitariis v. fasciculatis odoris, bracteis bracteolisque subulatis pedicellis brevibus v. brevissimis, capsulis deflexis.

B. asiatica, *Lour. Fl. Cochinch.* p. 72; *Benth. in DC. Prodr.* vol. x. p. 446; *Brand. For. Flor.* p. 318; *Beddome, Flor. Sylvat. Anal. Gen.* t. xxi. f. 4.

B. Neemda, *Hamilt. in Roxb. Fl. Ind.* vol. i. p. 396. *Ed. Carey,* vol. i. p. 411. *DC. l. c.*

B. discolor, *Roth. Nov. Pl. Spec.* p. 83; *Benth. Scroph. Ind.* p. 42; *Wight Ic. Pl. Ind. Or.* t. 894; *Ill.* t. 165, b. and v.

B. salicina, *Lamk. Illustr.* i. p. 291.

B. sundaica, acuminatissima *et* densiflora, *Blum. Bijd.* 743, *ex Miq. Fl. Ind. Bat.* vol. ii. p. 363.

B. subserrata, *Don. Prodr. Fl. Nep.* p. 92.

B. virgata, *Blanco, Fl. Filip.* p. 57? *non L. fil.*

A very common and graceful large shrub or small tree of Continental India, Burma, the Malay Peninsula, Cochin-China and Java, advancing north-westwards to the Indus, ascending to 4000 ft. in the Himalaya, and to 6000 in the Nilgherri Hills, but curiously enough absent from Ceylon. Two forms of it are common, differing much in the flowers which are very variable in size and the length of the tube of the corolla; one form, that here figured, has a salver-shaped corolla, with orbicular spreading lobes; the other has much smaller flowers with short suberect corolla-lobes. The stamens in both are inserted near the mouth of the corolla-tube, not as stated by Roxburgh near its base.

It is certainly remarkable that so very common, elegant and sweet-scented a plant as this, which flowers for three

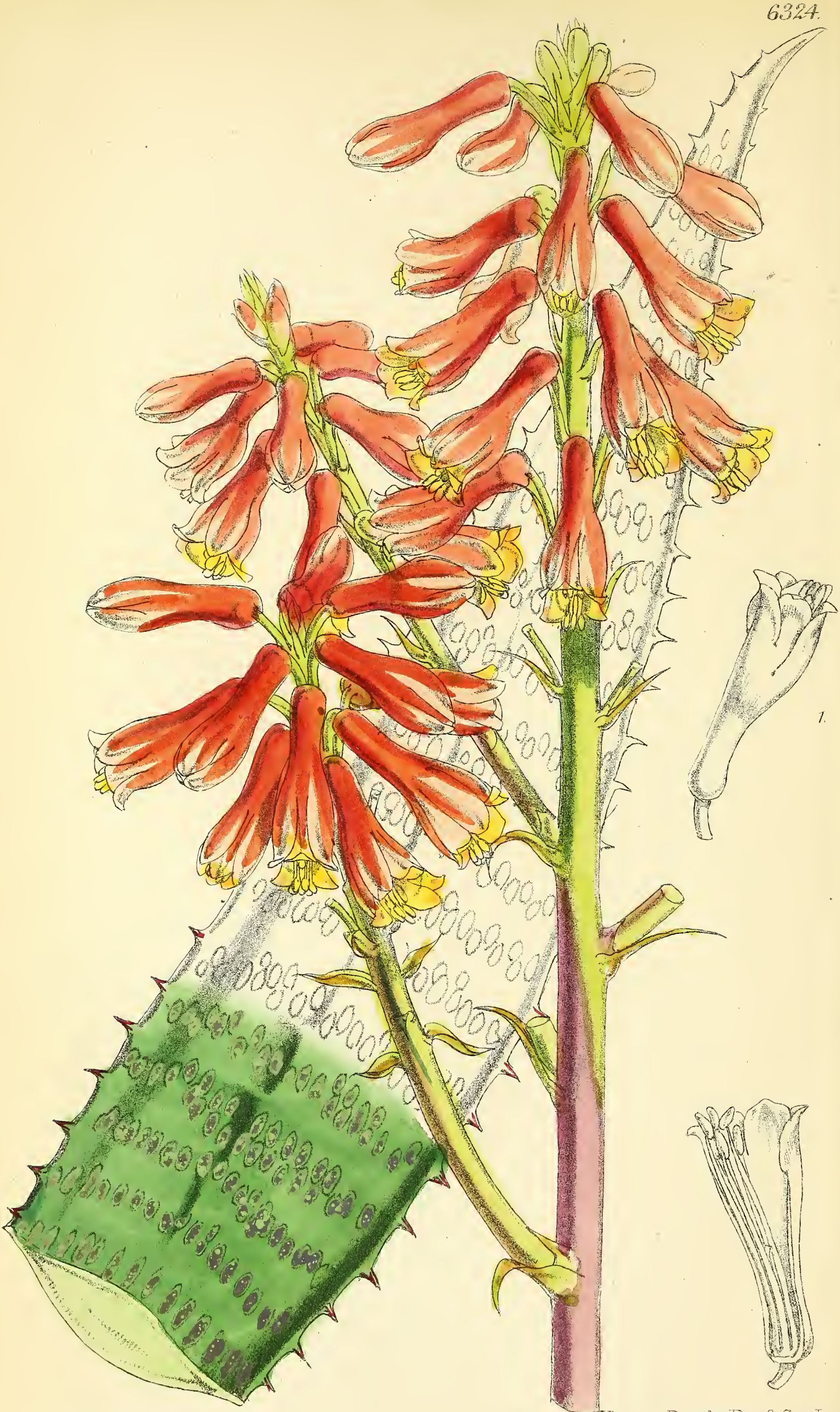
october 1st, 1877.

months continuously in India, should not be in common cultivation; but it does not appear in the Hortus Kewensis, nor is it figured in any work published in England. For the specimen here described I am indebted to Messrs. Downie, Laird and Co., who sent it for naming in February 1874.

DESCR. A shrub or small tree, with opposite cylindric branches, the young shoots, leaves beneath and inflorescence, clothed with snow white or buff appressed or mealy tomentum. *Leaves* four to eight inches long, short-petioled, lanceolate or elongate-lanceolate, acuminate, quite entire or serrulate; nerves diverging; upper surface glabrous. *Racemes* three to six inches long, axillary or terminal, or panicled, very slender, drooping; bracts and bracteoles subulate; flowers very shortly pedicelled, usually ternate, white, sweet-scented, of two forms, larger with spreading orbicular erose corolla lobes, smaller with erect lobes. *Calyx* shortly ovoid, 4- rarely 5-lobed or -toothed, villous. *Corolla-tubes* two to four times the length of the calyx, villous; limb with 4- rarely 5-spreading large, or ovate erect small lobes, mouth villous. *Stamens* inserted on the throat of the large corolla tube. *Anthers* oblong included. *Ovary* conical, narrowed into a short style with a thick 2-fid stigma. *Capsule* ovoid, deflexed 2-celled, 2-valved. *Seeds* numerous, imbricate, compressed, winged at both ends.—*J. D. H.*

Fig. 1, Flower; 2, corolla laid open, showing the ovary:—*both enlarged.*

6324.



W.H.Fitch, Del et Lith.

Vincent Brooks, Day & Son, Imp.

TAB. 6324.

ALOE TRICOLOR.

Native of the Cape of Good Hope.

Nat. Ord. LILIACEÆ—Tribe ALOINEÆ.

Genus ALOE, *Linn.* (*Kunth, Enum.* vol. iv. p. 492).

ALOE *tricolor;* breviter caulescens, foliis 12–15 dense rosulatis lanceolatis semipedalibus e basi ad apicem attenuatis sordide viridibus maculis copiosis parvis albidis irregulariter seriatis decoratis margine dentibus parvis deltoideis cuspidatis patulis apice castaneis corneis armatis, scapo sesquipedali, paniculis deltoideis parce ramosis ramis brevibus densifloris racemosis, pedicellis 3–4 lin. longis, bracteis lanceolatis acuminatis pedicello æquilongis, perianthii splendide corallino-rubri tubo cylindrico medio constricto, segmentis oblongis introrsum luteis tubo duplo brevioribus, genitalibus inclusis.

This is a fine new dwarf Aloe of the Pictæ group. It differs from *A. obscura*, Miller, and from the well-known *A. Saponaria*, Haworth, with its many subspecies and varieties, by its typically racemose, not capitate inflorescence and by its perianth strongly constricted in the middle. In both these points it agrees with *A. macrocarpa*, a species lately described and figured by Todaro, (Hort. Bot. Panorm. tab. 9) sent by Schimper from Abyssinia, from which our present plant differs in the shape and maculation of its leaves. Perhaps it may be, as Mr. N. E. Brown has suggested, the *A. arabica* of which the foliage alone is described by Salmdyck (see Kunth, Enum. vol. iv. p. 525). But it is clearly not the plant originally named *arabica* by Lamarck, which is founded on the Arabian *A. variegata* of Forskahl. Our present plant flowered for the first time in the Kew collection this spring. We received it from the Oxford Botanic Garden, and on applying to Professor Lawson he tells me that they got it some time ago, labelled as a Cape species, from Mr. Justus Corderoy, of Blewbury.

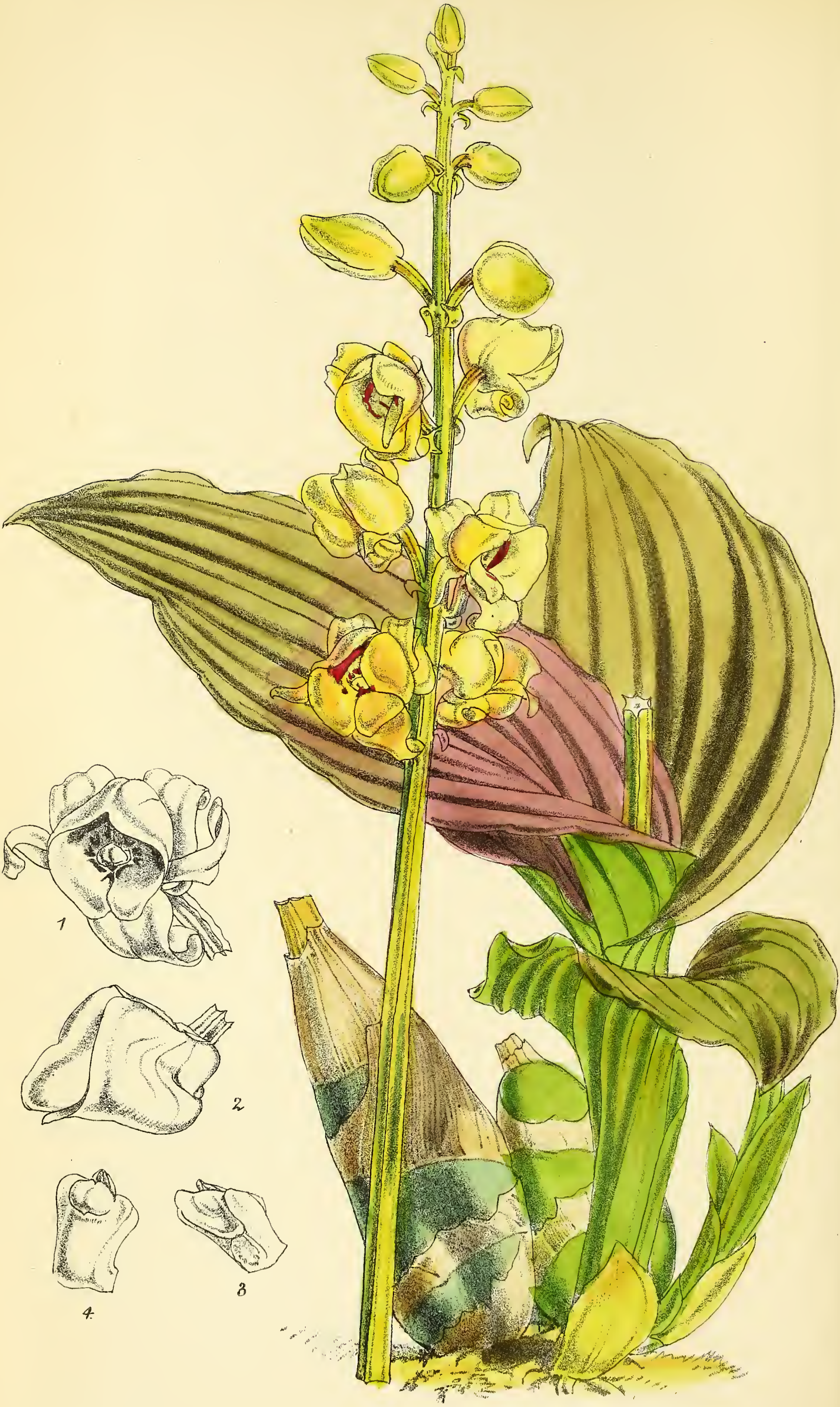
DESCR. *Stem* very short, simple. *Leaves* twelve to fifteen,

OCTOBER 1ST, 1877.

in a dense rosette, lanceolate, half a foot long, one and a half or two inches broad at the base, narrowed gradually to an acute point, half an inch thick in the middle, rounded on the back, slightly turgid in the upper half of the face, dead green, marked on both faces with copious irregular transverse bands of small crowded oblong or roundish whitish spots, the edge armed with crowded deltoid cuspidate spreading or deflected prickles, a sixteenth or a twelfth of an inch long, which have a horny brown tip, the leaves bordered before they fade with purplish-brown, and at the flowering time all more or less recurved. *Scape* a foot and a half long, purplish, glaucous. *Panicle* deltoid, six or eight inches long, with an end raceme three or four inches long and two or three short erecto-patent branches; pedicels three or four lines long; bracts lanceolate, about as long as the pedicels. *Perianth* an inch long, bright coral-red on the outside; tube twice as long as the segments, constricted at the middle; segments oblong, yellow inside. *Stamens* falling slightly short of the tip of the perianth-segments; oblong anthers a sixteenth of an inch long.—*J. G. Baker.*

Fig. 1, A single flower; 2, perianth, cut open—*both magnified.*

6325.



W. Fitch, Del et Lith.

Vincent Brooks, Day & Son, Imp.

TAB. 6325.

MICROSTYLIS JOSEPHIANA.

Native of the Sikkim Himalaya.

Nat. Ord. ORCHIDEÆ.—Tribe PLEUROTHALLIDEÆ.

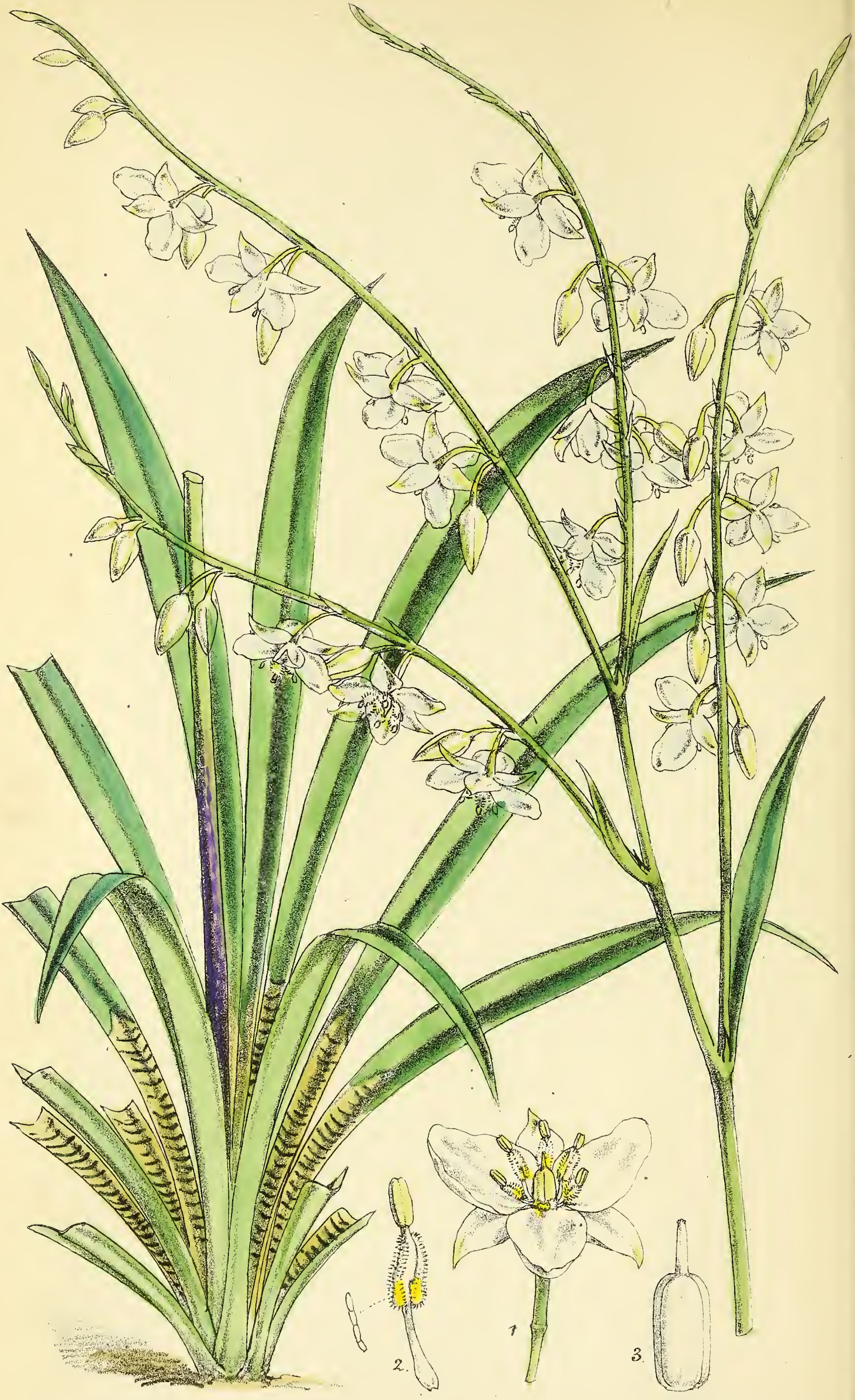
Genus MICROSTYLIS, *Nutt.* (*Lindl. Gen. et Sp. Orchid.* p. 18.)

MICROSTYLIS *Josephiana;* pseudobulbis evolutis oblongo-fusiformibus aphyllis junioribus 3-phyllis foliis oblongis acutis plicatis supra cupreo-aspersis, subtus viridibus, pedunculo basi hexagono superne minus angulato, floribus racemosis pro genere maximis posticis, bracteis ligulatis acutis, reflexis ovaria pedicellata vix æquantibus, sepalis lingulato-triangularibus obtuse acutis lateralibus connatis flavis nunc cupreo-irroratis, petalis linearibus acutis, labello cuculato ventricoso basi obtusangule sagittato apice emarginato-bilobo flavo intus brunneo maculato, columna utrinque apice antico extrorsum rhombea.—*Reichb. f. MS.*

A very curious novelty, resembling a good deal the African genus *Lissochilus*, differing in size and habit from the majority of species of *Microstylis*, which are for the most part weedy green-flowered plants of no interest to the horticulturist. It is a native of the tropical forests of the Sikkim Himalaya, where, however, it escaped the notice of all observers previous to the late Dr. Anderson, F.L.S., then Superintendent of the Calcutta Botanical Garden, who discovered it in 1863 and sent plants to the Calcutta Garden. These flowered in April, 1867, and I am indebted to my late friend for a copy of a drawing of the plant taken in the garden, which, however, has only three-flowered racemes. The specimen here figured flowered at the Royal Gardens of Kew, in May of the present year, from plants sent by Mr. Gamnie, Superintendent of the Sikkim Cinchona Plantations, to whom the Gardens are indebted for numerous and very valuable contributions of Sikkim seeds and plants. It is named after the editor of this magazine "in recognition of his services to orchidology when exploring for the first time by any botanist, the primæval forests of the Sikkim Himalaya."

DESCR. *Pseudobulbs* tufted, three to four inches high, oblong-fusiform, old leafless, young with about three leaves bright green, smooth, partially clothed with the remains of old leaves. *Leaves* four to seven inches long, oblong or oblong-lanceolate, acuminate, plaited, coppery above, beneath green. *Scape* acutely six-angled below, more obscurely so above. *Flowers* six to twelve, in a strict, erect lax raceme, nearly globose, three-quarters of an inch in diameter, posticous; bracts small, ligulate, acute, deflexed, hardly equalling the pedicel and ovary. *Sepals* broadly ovate, revolute, obtuse, apiculate, the lateral connate for one-third of their length, all of a dirty-yellow colour with a coppery hue. *Petals* linear, acute, revolute, much narrower than the sepals and of the same colour. *Lip* forming an orbicular hood, ventricose and emarginate above, with overlapping margins opposite the column, yellow with red-brown blotches internally. *Column* very short, with small rhomboid lateral wings.—*Reichb. f.*

Fig. 1, Flower; 2, side view of lip; 3 and 4, column—*all enlarged.*



W Fitch del et Lith
Vincent Brooks Day & Son Imp

TAB. 6326.

ARTHROPODIUM NEO-CALEDONICUM.

Native of New Caledonia.

Nat. Ord. LILIACEÆ.—Tribe ANTHERICEÆ.

Genus ARTHROPODIUM, *R. Br.* (*Baker in Journ. Linn. Soc.* vol. xv. p. 351.)

ARTHROPODIUM *neo-caledonicum ;* foliis pluribus rosulatis linearibus graminoideis viridibus glabris semipedalibus, caule nudo tereti, paniculæ laxissimæ ramis elongatis ascendentibus, floribus in racemos laxos secundos dispositis, pedicellis medio articulatis patulis vel cernuis inferioribus geminis, bracteis parvis lanceolatis, perianthii parvi albi segmentis exterioribus lanceolatis, interioribus oblongis, staminibus perianthio distincte brevioribus antheris minutis oblongis filamentis dimidio inferiori nudis dimidio superiori strumosis, ovario oblongo, stylo brevi, stigmate capitato.

A. neo-caledonicum, *Baker in Journ. Linn. Soc.* vol. xv. p. 352.

This is a native of New Caledonia, recently introduced into cultivation by Messrs. Veitch. It is interesting geographically as extending to New Caledonia the range of another of the characteristic Australian and New Zealand genera. Its nearest ally is *A. candidum*, Raoul, of New Zealand, and the other five or six species besides these two are all confined to Australia and New Zealand. Whether it will be hardy about London still remains to be proved. I described it last year from a single dried specimen gathered on Mount Kanala in New Caledonia by M. Deplanche, and it is No. 1695 of the Vieillard collection distributed by the late M. Lenormand. The plant from which our drawing was made flowered with Messrs. Veitch in May, 1877.

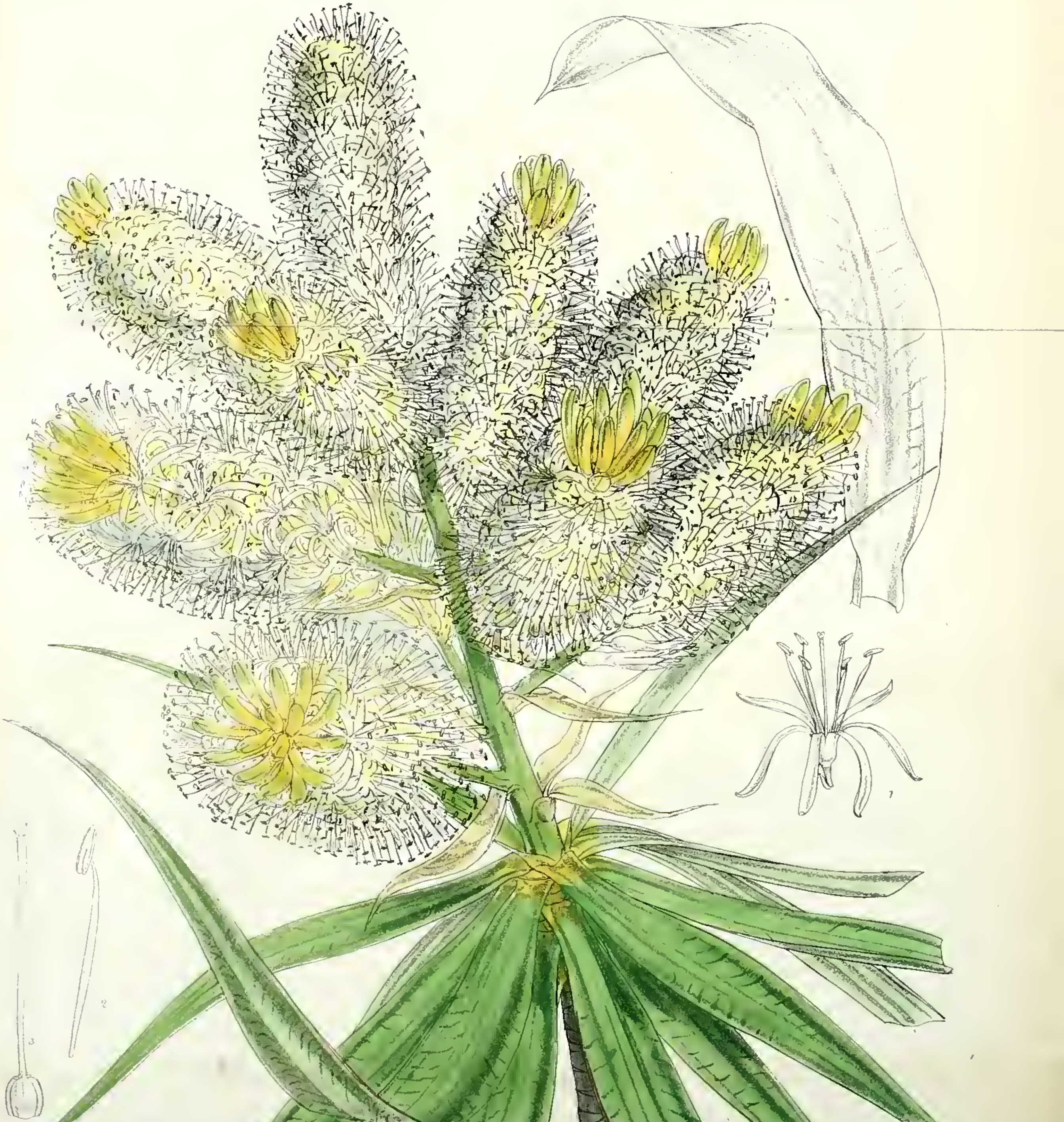
DESCR. *Root* a tuft of cylindrical fleshy fibres. *Leaves* many in a radical rosette, linear, grass-like, bright green, glabrous, about half a foot long, three or four lines broad. *Stem*, including the inflorescence, a foot and a half long, slender, terete, without any leaves between the radical rosette and the branches. *Panicle* very long, with four or five slender ascending branches each about half a foot long, which

OCTOBER 1ST, 1877.

bear the flowers in very lax secund racemes; lower flowers in pairs, the upper ones solitary; *pedicels* spreading or cernuous, reaching half an inch in length, articulated at the middle, the upper joint whitish and thickened. *Perianth* white, measuring half an inch in diameter when expanded; outer segments firmer, lanceolate, acute; inner broader, more tender, oblong, obtuse. *Stamens* distinctly shorter than the perianth-segments; anthers minute, oblong; filaments appendiculate with an oblong-sagittate pilose struma in the upper half, naked and rather flattened in the lower half. *Ovary* sessile, oblong; style short, erect; stigma capitate.—*J. G. Baker.*

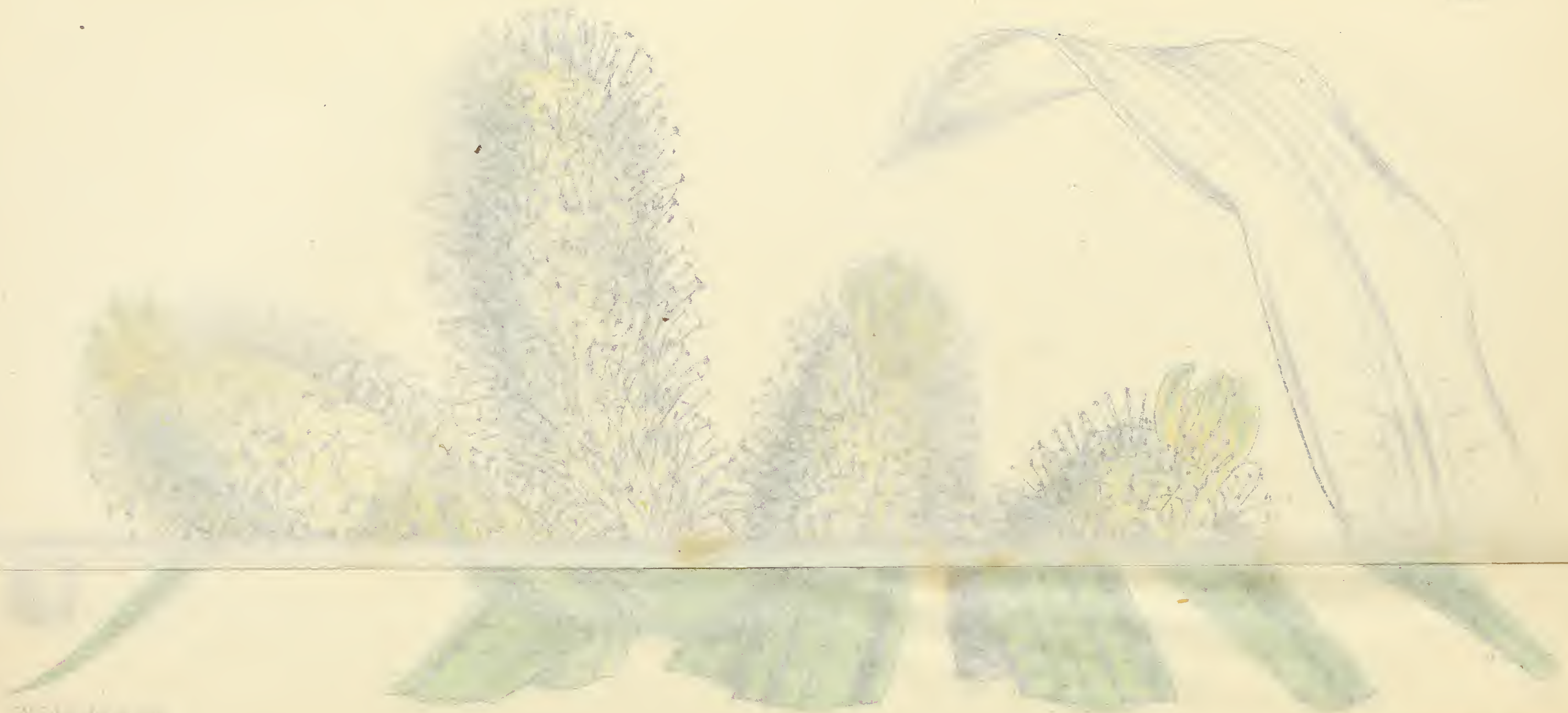
Fig. 1, an entire flower; fig. 2, a single stamen; fig. 3, the pistil:—*all magnified.*

6327.



W Fitch del et Lith

Vincent Brooks Day & Son Imp



W. Fitch del. et lith.

Vincent Brooks Day & Son Imp.

Tab. 6327.

DRACÆNA reflexa.

Native of Mauritius.

Nat. Ord. Liliaceæ.—Tribe Dracæneæ.

Genus Dracæna, *Vand.* (*Baker in Journ. Linn. Soc.* vol. xiv. p. 523).

Dracæna *reflexa;* frutex 6–20-pedalis, foliis lanceolatis acutis patulis laxe dispositis 6–9 poll. longis, 6–12 lin. latis, costâ præter apicem perspicua, paniculis deltoideis erectis breviter pedunculatis ramis patulis densifloris, pedicellis solitariis apice articulatis, bracteis superioribus deltoideis, inferioribus lanceolatis, perianthii albidi tubo campanulato, segmentis ligulatis tubo 5–6-plo longioribus, staminibus segmentis æquilongis, stylo demum exserto.

D. reflexa, *Lamk. Encyclop.* vol. iii. p. 324; *Red. Lil.* vol. ii. t. 92; *Kunth, Enum.* vol. v. p. 6; *Regel, Revis. Drac.* p. 40; *Baker in Journ. Linn. Soc.* vol. xiv. p. 530.

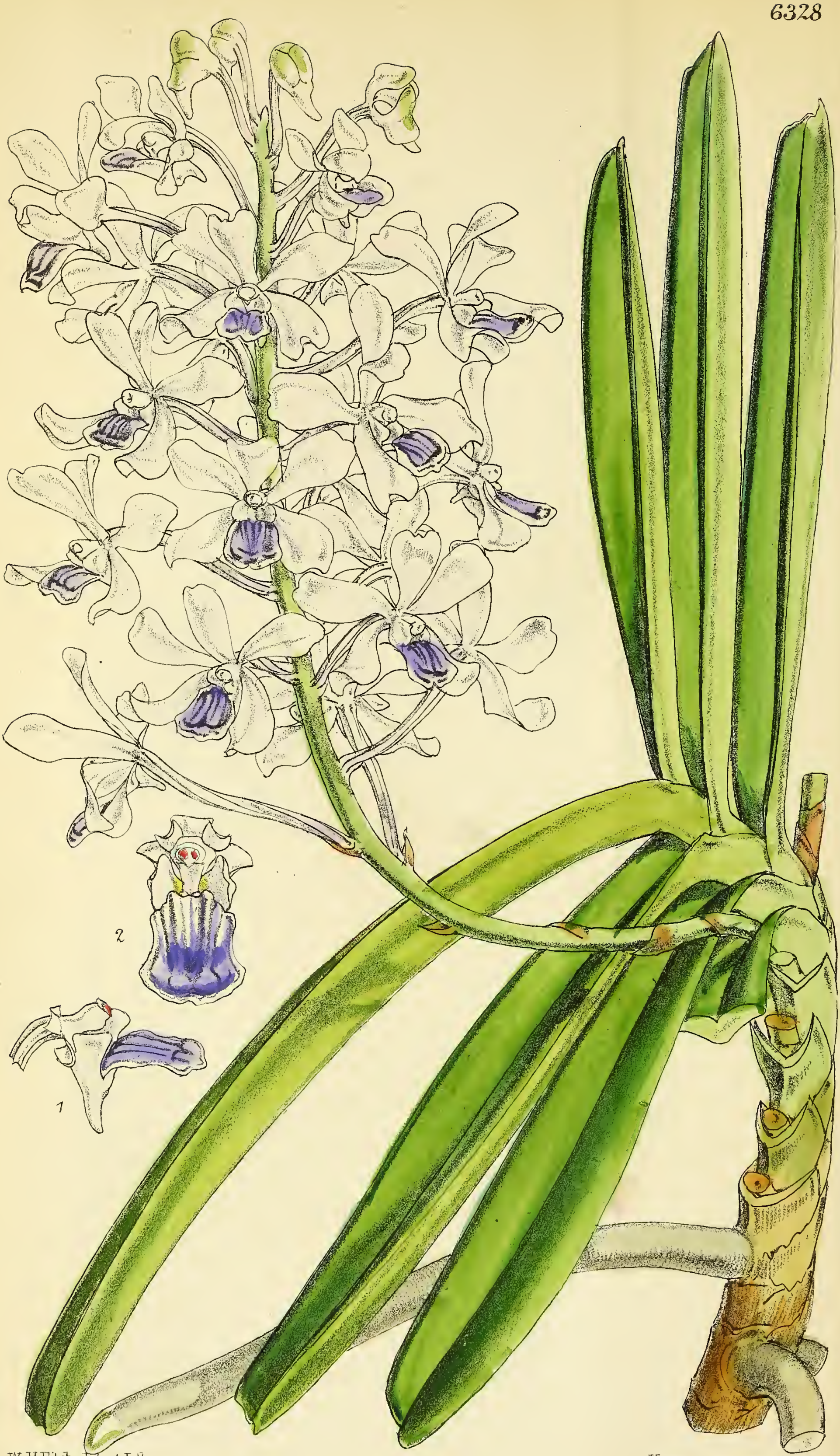
D. cernua, *Jacq.*; *Roxb. Fl. Ind.* vol. ii. p. 158.

This is the typical form of the *Bois de Chandelle* of Mauritius. The plant is spread widely through Tropical Africa and runs into numerous varieties. It has long been known in cultivation, but the only figure which has been given is the old one above cited. It may be known from the other cultivated Dracænas with lanceolate sessile leaves by the looser disposition of its leaves upon the stem and by its solitary flowers, with a very short perianth-tube. *D. cernua* of Jacquin is a variety of the same plant, with a drooping panicle, longer pedicels and leaves edged with red. Our present drawing was made from a specimen that flowered some time ago in the Palm-house at Kew.

Descr. An erect shrub, with slender branches, reaching a height of from six to twenty feet. *Leaves* laxly placed over the top half foot of each of the branches, lanceolate, acute, six to nine inches long, three-quarters of an inch to an inch broad at the middle, narrowed to a quarter of an inch above the deltoidly dilated clasping base, bright green, with the midrib visible on the under side, except near the tip. *Panicle* deltoid, erect, shortly peduncled, usually about a foot long and broad, with several densely-flowered spreading branches, bracteated by lanceolate reduced leaves; *pedicels* solitary, an eighth to a quarter of an inch long, articulated at the tip; bracts membranous, the upper ones deltoid, shorter than the pedicels, the lower ones lanceolate. *Perianth* whitish, half to three-quarters of an inch long, the tube very short. *Stamens* reaching to the tip of the perianth-segments; the filament five or six times as long as the pale yellow linear-oblong anther. *Berry* passing from orange to red, generally globose and one-seeded.—*J. G. Baker.*

Fig. 1, A single flower; 2, a single stamen; 3, the pistil:—*all magnified.*

6328



W. H. Fitch del. et Lith

Vincent Brooks Day & Son Imp

TAB. 6328.

VANDA CÆRULESCENS, *var.* BOXALLII.

Native of Transgangetic India.

Nat. Ord. ORCHIDACEÆ.—Tribe VANDEÆ.

Genus VANDA, *Lindl.* (*Bot. Reg.* 1843 ; *Misc. p.* 14).

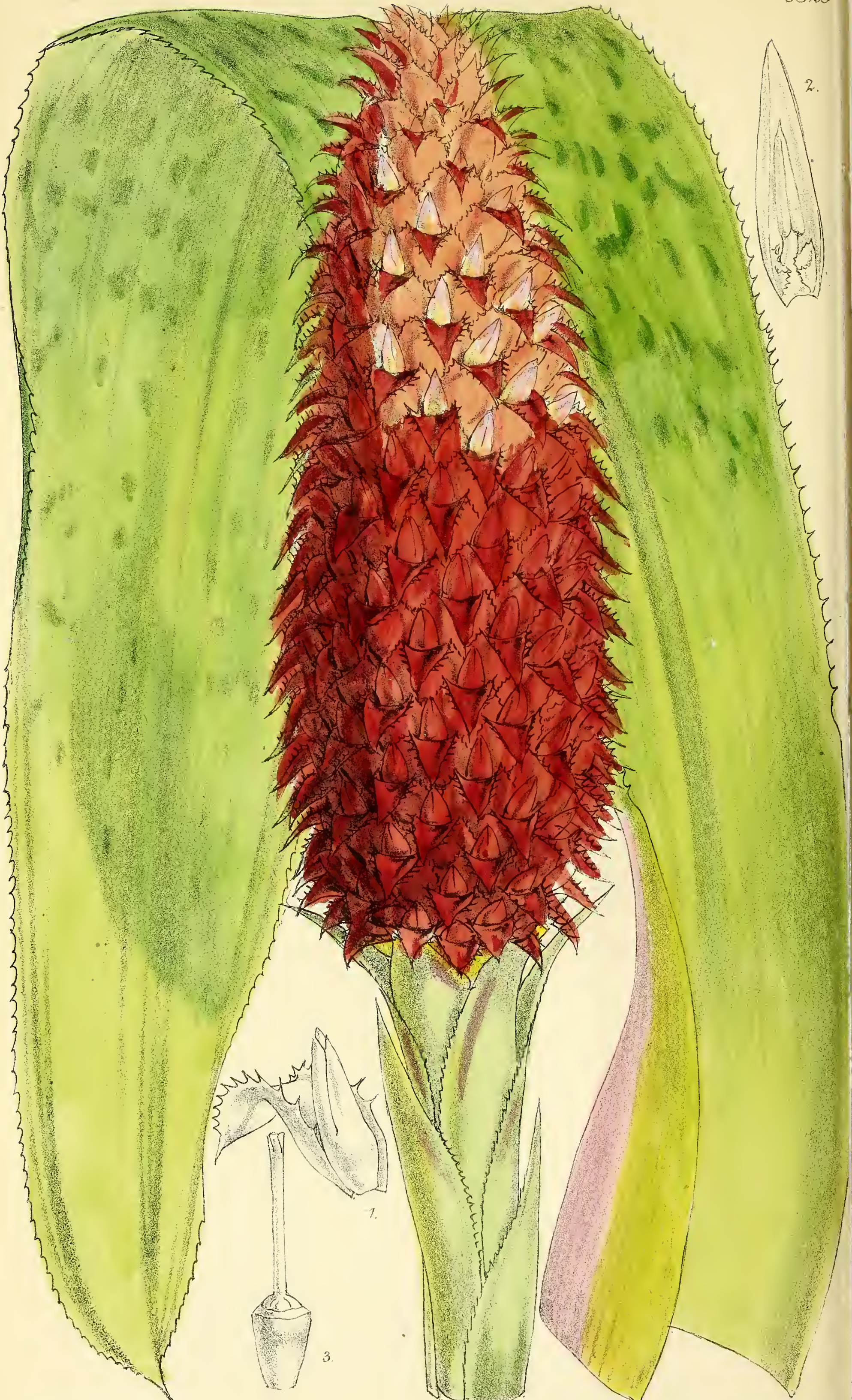
VANDA *cærulescens*, *Griff.* (*Bot. Mag.* 5834), var. *Boxallii;* sepalis petalisque lateralibus pallidioribus, labello violaceo disco albo-lineato.—*Reichenb. fil. in Gard. Chron.* 1877, pt. i. p. 749.

This lovely form of *Vanda cærulescens*, a species already well represented in this Magazine (Tab. 5834) was figured from a specimen flowered by Messrs. Low, of Clapton, last June. It is merely a horticultural form of the type-species, presenting no tangible botanical difference entitling it to rank as a variety. Those specimens, in which the outer perianth becomes pure white, must be especially charming. In the flowers figured they are a very pale violet.

DESCR. *Stem* and *leaves* as in *Vanda cærulescens*, the latter numerous, rigidly distichous, with an obliquely toothed apex, four to six inches long, half to three-quarters of an inch broad, strongly keeled. *Raceme* many-flowered from the lower axils, in our specimen rather shortly pedunculate ; *pedicel* and *ovary* one inch to one and a quarter inch in length, subtended by very small ovate or lanceolate bracts. *Flowers* one inch to one and a quarter inch in diameter ;

NOVEMBER 1st, 1877.

sepals and *petals* nearly equal, obtuse or retuse, pale violet or nearly white. *Lip* rather shorter than the sepals, the disk with smooth longitudinal ridges, with dark blue or violet stripes alternating with white ones, passing into deep violet at the dilated extremity with its bilobate convexity.—*D. Oliver.*



W. H Fitch del et Lith

Vincent Brooks Day & Son Im

TAB. 6329.

ÆCHMEA (CHEVALLIERA) *Veitchii.*

Native of New Granada.

Nat. Ord. BROMELIACEÆ.—Tribe ANANASSEÆ,

Genus ÆCHMEA, *Ruiz & Pav. Fl. Peruv. tab.* 264.

ÆCHMEA (*Chevalliera*) *Veitchii* ; acaulis, stolonifera, foliis 12–15 loratis rigide coriaceis pedalibus vel sesquipedalibus facie glabris viridibus dorso prorsus albo-lepidotis haud zonatis margine dentibus crebris minutis brunneis armatis, scapo pedali bracteis pluribus viridibus firmis lanceolatis adpressis dentatis prædito, floribus in capitulum densum oblongum dispositis, bracteis squarrosis dentatis cartilagineis splendide rubris calyce paulo longioribus, ovario inæquilateraliter globoso facie exteriori magis convexo, sepalis lanceolato-deltoideis acutis haud mucronatis ovario longioribus, petalis pallidis parvis lingulatis, genitalibus sepalis subæquilongis, staminibus petalinis basi squamulis parvis præditis.

CHEVALLIERA Veitchii, *Morren in litt.*

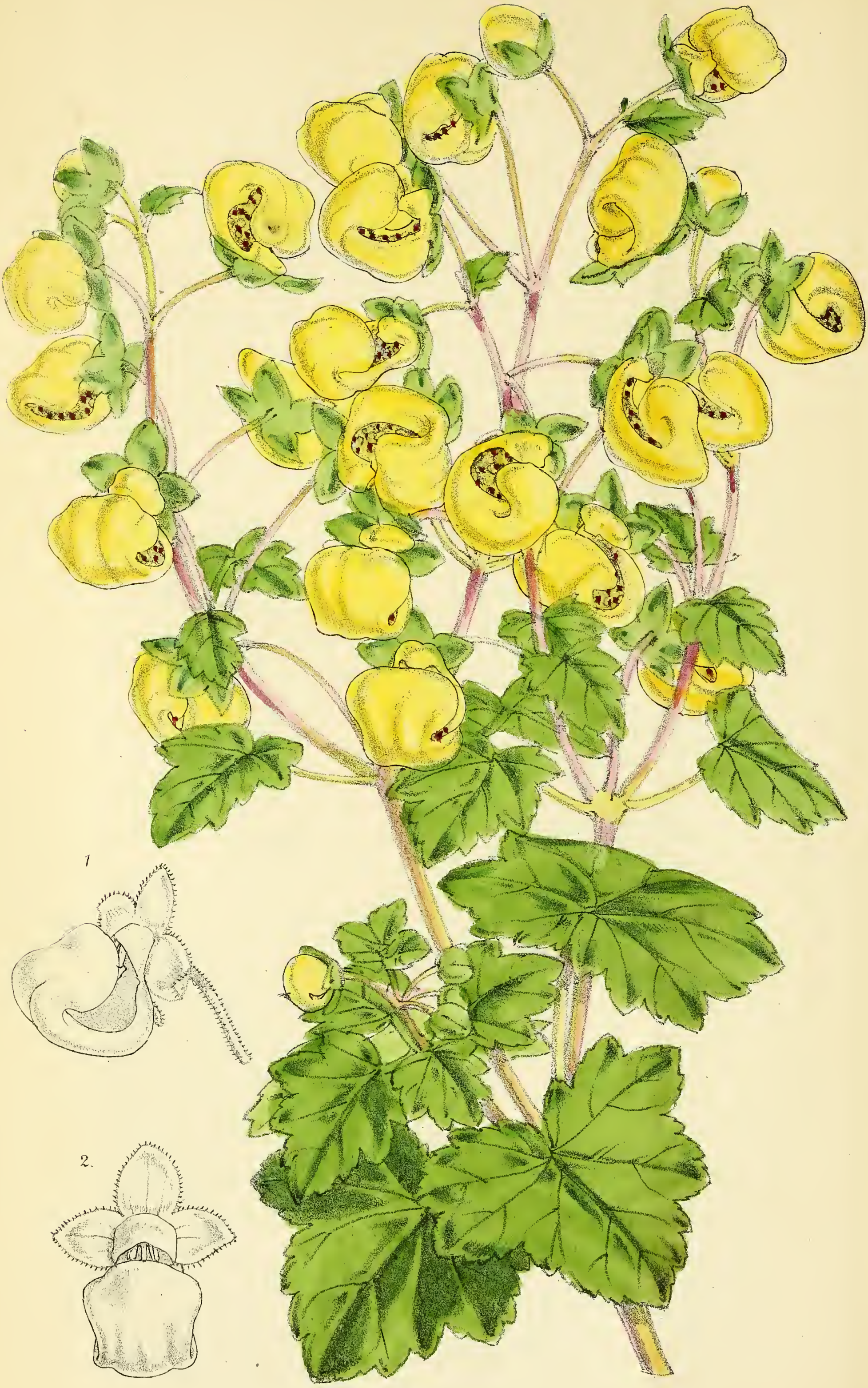
This is a very fine new Bromeliad, discovered by Gustave Wallis in New Granada in 1874, and introduced this present year into cultivation by Messrs. Veitch. It is closely allied to the Costa-rican *Æchmea Mariæ-reginæ* of Wendland, and belongs to the section *Chevalliera*, which was proposed as a genus by Gaudichaud (Atlas, Voy. de la Bonite, tab. 61–62), and has been maintained as such by Grisebach and Morren. *Chevalliera* differs from *Hohenbergia*, under which most of the cultivated Æchmeas fall, by the heads being so tightly packed that the ovary and calyx have become unequal-sided by pressure, instead of remaining symmetrically globose, and both *Chevalliera* and *Hohenbergia* recede from the original species of *Æchmea* by their central inflorescence and shorter and less protruded petals and stamens. In addition to these, I am disposed to look upon *Hoplophytum*, *Pothuava*, *Pironneava*, *Canistrum* and *Ortgiesia* as mere sections of Æchmea.

NOVEMBER 1ST, 1877.

DESCR. Acaulescent, stoloniferous. Produced *leaves* twelve to fifteen, forming a dense basal rosette, lorate, horny in texture, reaching a length of twelve or fifteen inches, and a breadth of under two inches above the middle, so deeply channelled that they are semicircular in horizontal section in the lower half, bright green, and quite naked all down the face, thinly white-lepidote all down the back without any transverse bands, deltoid-cuspidate at the point, the edge bordered all down with close small erecto-patent lanceolate brown teeth. *Scape* about a foot long, central, entirely hidden by the imbricated lanceolate adpressed green horny toothed bracts. *Flowers* in a dense oblong head, three or four inches long, and under a couple of inches in diameter, each subtended by a squarrose bright scarlet horny toothed bract; upper bracts without any flowers in their axils. *Ovary* globose, a quarter of an inch long, the side nearest the axis much less convex than the outer one. *Sepals* lanceolate-deltoid, connivent, under half an inch long, bright scarlet in the lower flowers of the head, white in the upper ones, acute, but not spine-tipped. *Petals* pale, lingulate, imperfectly developed in the specimen drawn. *Stamens* about as long as the calyx, those opposite the petals furnished with a pair of small scales at the base—*J. G. Baker.*

Fig. 1, A single flower, and its clasping bract; 2, petaline stamen and its basal scales; 3, pistil:—*all magnified.*

6330.



W. Fitch del et Lith

Vincent Brooks Day & Son Imp

TAB. 6330.

CALCEOLARIA LOBATA.

Native of Peru and Bolivia.

Nat. Ord. SCROPHULARIACEÆ.—Tribe CALCEOLARIEÆ.

Genus CALCEOLARIA, *Linn.* (*Benth. et Hook. f. Gen. Plant.* ii. p. 929).

CALLEOLARIA (Jovellana) *lobata;* herbacea vel basi frutescens glanduloso-pilosula ramis erectis adscendentibusve, foliis longiuscule petiolatis rotundato-cordatis 5–7-lobatis dentatis, cymis sæpius corymbiformibus v. laxe paniculatis, calycis viscoso-pubescentis laciniis ovatis v. oblongo-ovatis obtusiusculis, corollæ labio superiore brevissimo, inferiore elongato oblongo-obovato incurvo basi longe contracto ultra medium aperto.

C. lobata, *Cav. Ic. et Descr. Plant.* vol. p. 26, tab. 443, fig. 1; *Benth. in DC. Prodr.* vol. x. p. 206.

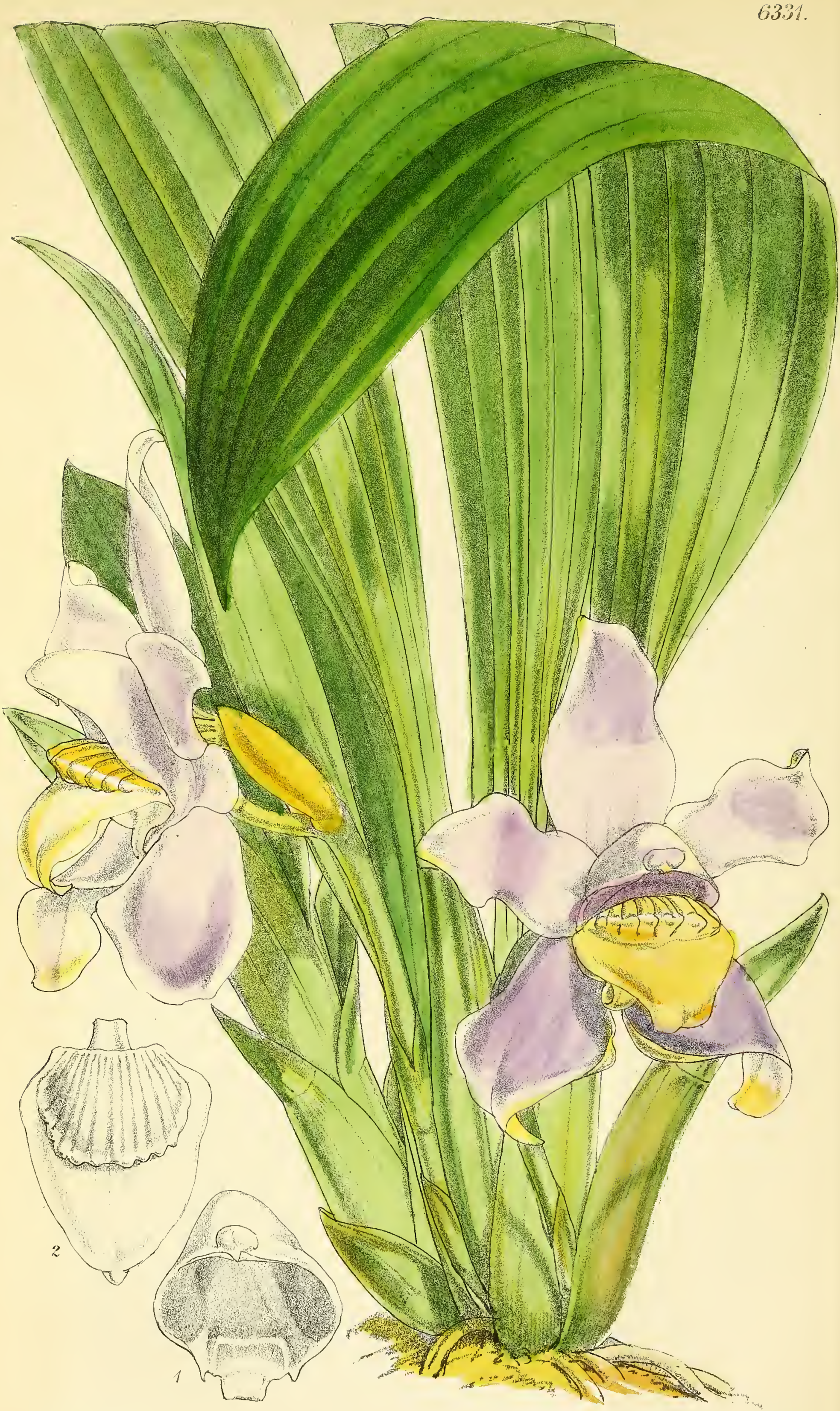
We are indebted to Messrs. Veitch for this very interesting addition to our cultivated species of *Calceolaria.* It is a dense-growing herb from seven or eight inches to a foot or more in height, flowering profusely in the autumn. The corolla is pale yellow with deep brown-purple spots towards the base of the lower lip, which is remarkably long and folded back upon itself about the middle.

DESCR. An ascending or decumbent herb, freely branching from the base, more or less glandular-pubescent throughout. *Leaves* opposite, on rather long petioles or the upper ones shortly petiolate, from half-an-inch to 3 inches in diameter, roundish with a cordate base, and palmately 5- to 7-lobed, the lobes unequally toothed. *Cymes* terminal, but shortly pedunculate; pedicels half to one inch in length. *Flowers* a clear

NOVEMBER 1ST, 1877.

rather pale yellow with warm red-purple spots on the lip. *Calyx-lobes* herbaceous, glandular-hairy, ovate or ovate-oblong, rather obtuse. *Corolla* with a very short tumid rounded upper lip, lower lip elongate obovate-oblong rounded and entire at the extremity, sharply recurved a little beyond the middle.—*D. Oliver*.

Figs. 1 and 2, Side and front view of flower:—*a little enlarged.*



W. Fitch, del. et lith.

Vincent Brooks, Day & Son, Imp.

TAB. 6331.

BOLLEA LALINDEI.

Native of New Granada.

Nat. Ord. ORCHIDACEÆ.—Tribe VANDEÆ.

Genus BOLLEA (*Reichenb. fil. in Mohl & Schlecht. Bot. Zeit.* vol. 1852, p. 667.)

BOLLEA *Lalindei ;* aff. Bolleæ violaceæ, Reichenb. fil. ; foliis anguste cuneato-ligulatis acutis, floribus solitariis, sepalis latis oblongo-ovatis petalis lateralibus late oblongis subplanis, labello a basi hastato triangulo antice utrinque implicito, hinc quasi grosse tridentato, sinubus inter dentes obtusangulis, callo in disco multisulcato columna angustiori utrinque angulato, sulcis rugosis, angulo deorsum verso.—*Rchb.*

B. Lalindei, *Reichenb. fil. in Gard. Chron.* 1874, part ii. p. 33.

For the discovery of this beautiful species we are indebted to Mr. Lalinde, of Medellin. A fresh flower was furnished to Dr. Reichenbach, by Messrs. Veitch, in 1874, àpropos of which the notice in 'Gardeners' Chronicle,' cited above, was drawn up. Our figure is from a specimen flowered by Messrs. Williams, of Holloway, last August, which differs materially in colour from the plant described by Reichenbach. In the latter the flower is of a beautiful bright violet with the tip of the upper sepal green, the lower half of the lower sepals brownish-purple; the lip deep orange and the column deep purplish. Notwithstanding these great differences in coloration, there is no doubt as to the agreement of the specimen here figured with Reichenbach's specific description in the diagnostic characters taken from the peculiar form of the lip, and the great breadth of the column which completely arches over the plaited palate.

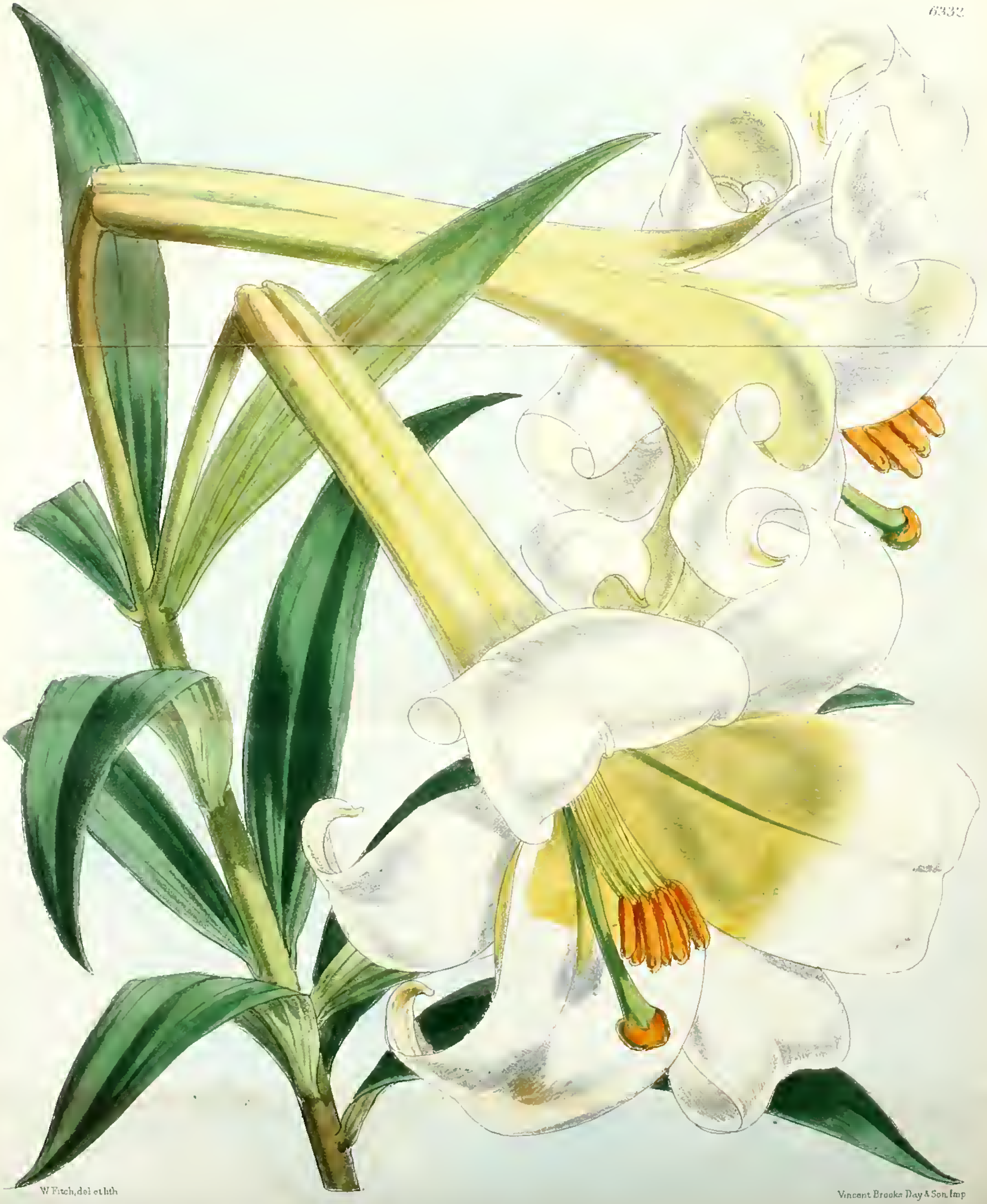
I have already in this Magazine under Tab. 6214 and 6240, given it as my opinion that *Bollea* should, with *Pescatoria* and other genera there enumerated, be regarded as sections of

Zygopetalum, and a consideration of B. Lalindei tends to confirm me in this opinion.

Descr. Leaves elliptic-lanceolate, acuminate, gradually narrowed below into the petiole, one foot long more or less, about one and a half inches broad, strongly five-nerved. *Flowers* two and a half to three inches broad on peduncles about 3 inches long, one-flowered with two or three sheathing bracts. *Sepals* spreading and recurved at the lips, broadly ovate-oblong, obtuse, rose-coloured with straw-coloured tips, the lower margin of the lateral ones also straw-coloured. *Petals* spreading, undulate, oblong, obtuse, rose-coloured with white margins. *Lip* ovate hastate, margins and tip recurved, the latter obtusely pointed, golden yellow; disk with raised close-pressed, blunt, smooth lamellæ. *Column* broader than the raised disk of the lip, arched, rose-coloured.—*J. D. H.*

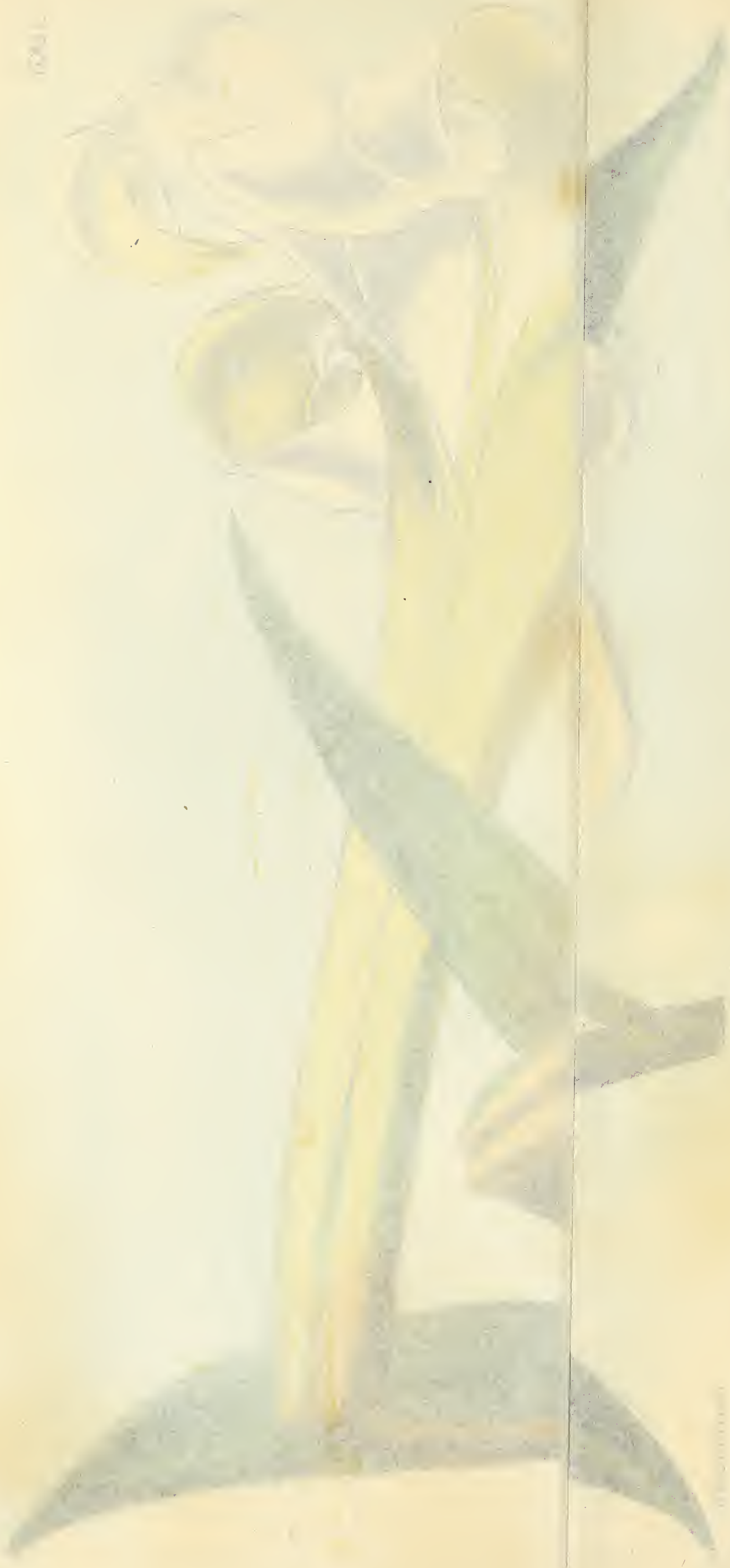
Fig. 1, Column; 2, lip:—*both enlarged.*

6332



W Fitch, del et lith

Vincent Brooks Day & Son, Imp



TAB. 6332.

LILIUM NEILGHERRENSE.

Native of the Mountains of Peninsular India.

Nat. Ord. LILIACEÆ.—Tribe TULIPEÆ.

Genus LILIUM, *Linn.* (*Baker in Journ. Linn. Soc.* vol. xiv. p. 225).

LILIUM *neilgherrense*; bulbo magno globoso rhizomatoso squamis ovato-lanceolatis albis, caulibus strictis validis erectis 1–3-floris 1–2-pedalibus, foliis 30–40 lanceolatis sessilibus 5-nervatis firmis viridibus utrinque glabris, perianthii infundibularis albi suaveolentis 6–10-pollaris tubo segmentis falcatis oblongis sesquilongioribus, staminibus parallelis perianthio distincte brevioribus, antheris magnis polline luteo, pistillo staminibus æquilongo.

L. neilgherrense, *Wight, Icones*, tab. 2031–2032; *Baker in Journ. Linn. Soc.* vol. xiv. p. 230; *Floral Magazine, new series*, tab. 237.

L. tubiflorum, *Wight, Icones*, tab. 2033–2034; *Duchartre Obs. sur le Genre Lis*, p. 71.

L. Wallichianum, *Wight, Icones*, tab. 2035; *non Schultes fil.*

L. Metzii, *Steudel in Hohenack. Plant Ind. Or. Exsicc.* No. 954.

L. neilgherricum, *Hort. Veitch.*; *Lemaire Ill. Hort.* vol. x. tab. 353; *Planch. in Flore des Serres*, tab. 2266–2267.

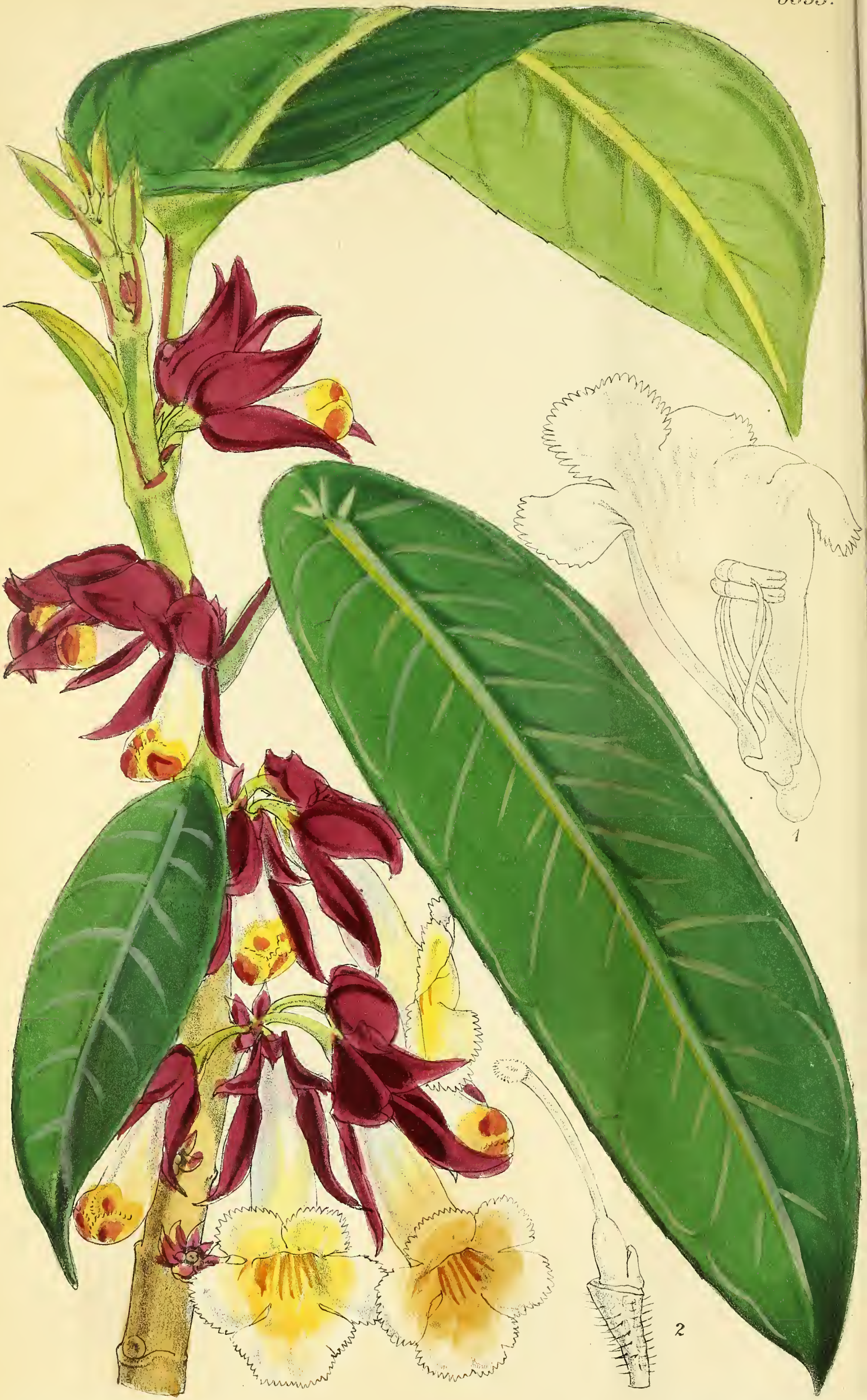
This is the only Lily of the mountains of Southern India. It inhabits the Neilgherries and Pulnies, at an elevation of about eight thousand feet above sea-level. It is closely allied to *L. Wallichianum* of the Himalayas, *L. philippinense* of the Philippine islands, and *L. longiflorum*, *japonicum*, and *Brownii* of China and Japan. It was introduced by Mr. Thomas Lobb in 1862, but failed to become established, and has lately been imported again in considerable quantity by Messrs. Veitch and others. The present plate was taken from a specimen that flowered with Messrs. Veitch in 1876. I have no hesitation in regarding as slight forms of one species the three plants figured by Dr. Wight, and cannot follow the view lately expressed by Dr. Planchon in the 'Flore

DECEMBER 1ST, 1877.

des Serres' in separating Lemaire's *L. neilgherricum*, which I cannot see is distinguishable even as a variety.

DESCR. *Bulb* globose, two to three inches in diameter, developed upon a rhizome which reaches a length of half a foot; scales thick, white, ovate-lanceolate. *Stem* one to two feet high, green, glabrous, stiffly erect, half an inch thick in the lower part. *Leaves* moderately crowded, all scattered, thirty or forty to a stem, sessile, lanceolate, three or four inches long, half or three-quarters of an inch broad at the middle, firm in texture, bright green, strongly five-nerved, glabrous even on the ribs beneath. *Flowers* one, two, or three, horizontal or nearly so, pure white except the outside of the tube which is greenish, fragrant, narrowly funnel-shaped, varying in length from six to ten inches, the permanently connivent claws of the segments half as long again as their falcate oblong limb, which in the three inner ones is usually half as broad again as in the three outer. *Stamens* about three-quarters as long as the perianth; anthers sometimes an inch long; pollen bright yellow. *Ovary* cylindrical, above an inch long; style thickened gradually above the middle, reaching to the top of the stamens; stigma capitate, deeply three-lobed.—*J. G. Baker.*

6333.



W. Fitch, del. et lith.

Vincent Brooks, Day & Son, Imp.

Tab. 6333.

ALLOPLECTUS peltatus.

Native of Costa Rica.

Nat. Ord. Gesneraceæ.—Subtribe Columneeæ.

Genus Alloplectus, *Martius* (*Benth. et Hook. f. Gen. Plant,* vol. ii. p. 1008).

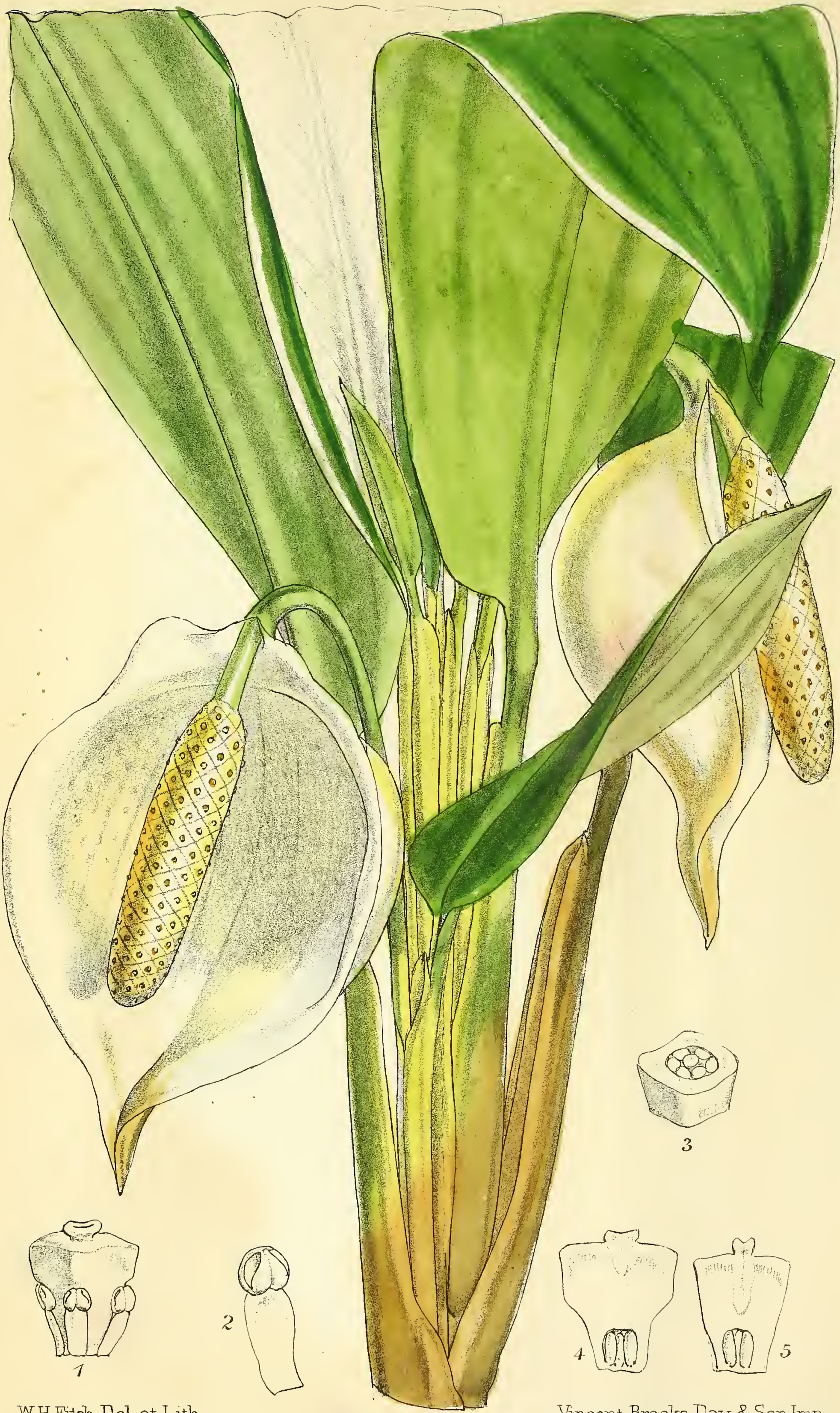
Alloplectus *peltatus;* fruticosus erectus glaber, foliis oppositis petiolatis carnosulo-coriaceis altero ovali-oblongo apiculato basi rotundato peltato altero multoties minore, floribus axillaribus sæpius 2–3-fasciculatis pedicellatis, calyce 5-partito rubro-purpureo lobo postico minore cæteris lanceolatis obliquis, corollæ tubo calyce longiore limbo bilabiato, labio superiore bifido inferiore tripartito, segmentis obovato-rotundatis denticulato-fimbriatis, glandula disci carnosa ovata ovario breviore postica.

Introduced by Messrs. Veitch from Costa Rica, where it was collected by the late M. Endres, and flowering from July to the present month (November) in our stoves. This is another of those Gesneriads remarkable in having one leaf of each pair permanently rudimentary, as, for example, in *Columnea aureo-nitens* (Bot. Mag. 4294), with farther and, so far as I know, unique peculiarity in this genus of a distinctly peltate leaf-blade, the insertion of the stout petiole being a quarter to one third of an inch within the rounded base of the blade.

Descr. Shrubby, one and a half to two feet high, wholly glabrous excepting the young leaves which are ciliate at first as are also the segments of the calyx. *Branches* stout, sub-terete, marked with leaf-scars, the internodes smooth. *Leaves* opposite, but one of each pair fully developed, on a stout terete petiole one to two inches in length, blade oval-oblong rather coriaceous and somewhat fleshy, acute or apiculate, base rounded and peltate, six to nine inches long, one and three-quarters to two and a half inches broad, at first ciliolate, early glabrous. *Flowers* in sessile few-flowered fascicles, more rarely solitary, from the axils of the present or of fallen leaves, on pedicels a half to three-quarters of an inch long; bracts lanceolate or ovate-lanceolate, acute, shorter than the pedicels. *Calyx* 5-partite, red-purple, segments lanceolate subacute one inch long, excepting the posterior segment which is much shorter, lateral segments oblique. *Corolla* pale yellow, throat and base of lobes passing into orange-brown; tube curved, constricted below, and again dilated around the ovary; limb bilabiate, upper lip deeply bifid, lower lip tripartite, segments like those of the upper lip obovate-rotundate, the median lobe larger and rotundate, all more or less fimbriate-dentate. *Stamens* included, four, inserted near base of corolla-tube; the glabrous filaments cohering below in pairs; anthers slightly coherent, two-celled, obtuse and rounded above, sagittate below, cells contiguous. *Ovary* superior, ovoid, narrowed into the style, minutely papillose, one-celled with four mutiovulate placentas; stigma slightly compressed and laterally dilated, undivided, strongly papillose. *Gland* of disk posterior, ovate, about half the length of the ovary.—*D. Oliver.*

Figs. 1. Corolla laid open; 2, pistil and disk.

6334.



W.H.Fitch, Del. et Lith.

Vincent Brooks, Day & Son, Imp.

TAB. 6334.

STENOSPERMATIUM WALLISII.

Native of Columbia.

Nat. Ord. AROIDEÆ.—Tribe CALLEÆ.

Genus STENOSPERMATIUM, *Schott* (*Prodr. Syst. Aroid.* p. 346).

STENOSPERMATIUM *Wallisii;* caudice assurgente ad nodos radices emittente, foliis approximatis longiuscule petiolatis basi vaginantibus lamina oblongo- vel ovato-lanceolatis acutis basi oblique rotundatis, pedunculis folio brevioribus v. subæquilongis erectis apice recurvis, spadice cylindraceo obtuso pedunculato nutante spathâ albida rotundata concava v. late cymbiforme breviore.

S. Wallisii, *M. T. Masters in Gard. Chron.* 1875, I. p. 558 (cum ic. xylog.).

One of Mr. Wallis' important discoveries in Tropical America, introduced to cultivation by Messrs. Veitch; exhibited two years ago in flower, and described, together with an excellent woodcut and detailed analysis, by Dr. Masters in the 'Gardeners' Chronicle' about the same time.

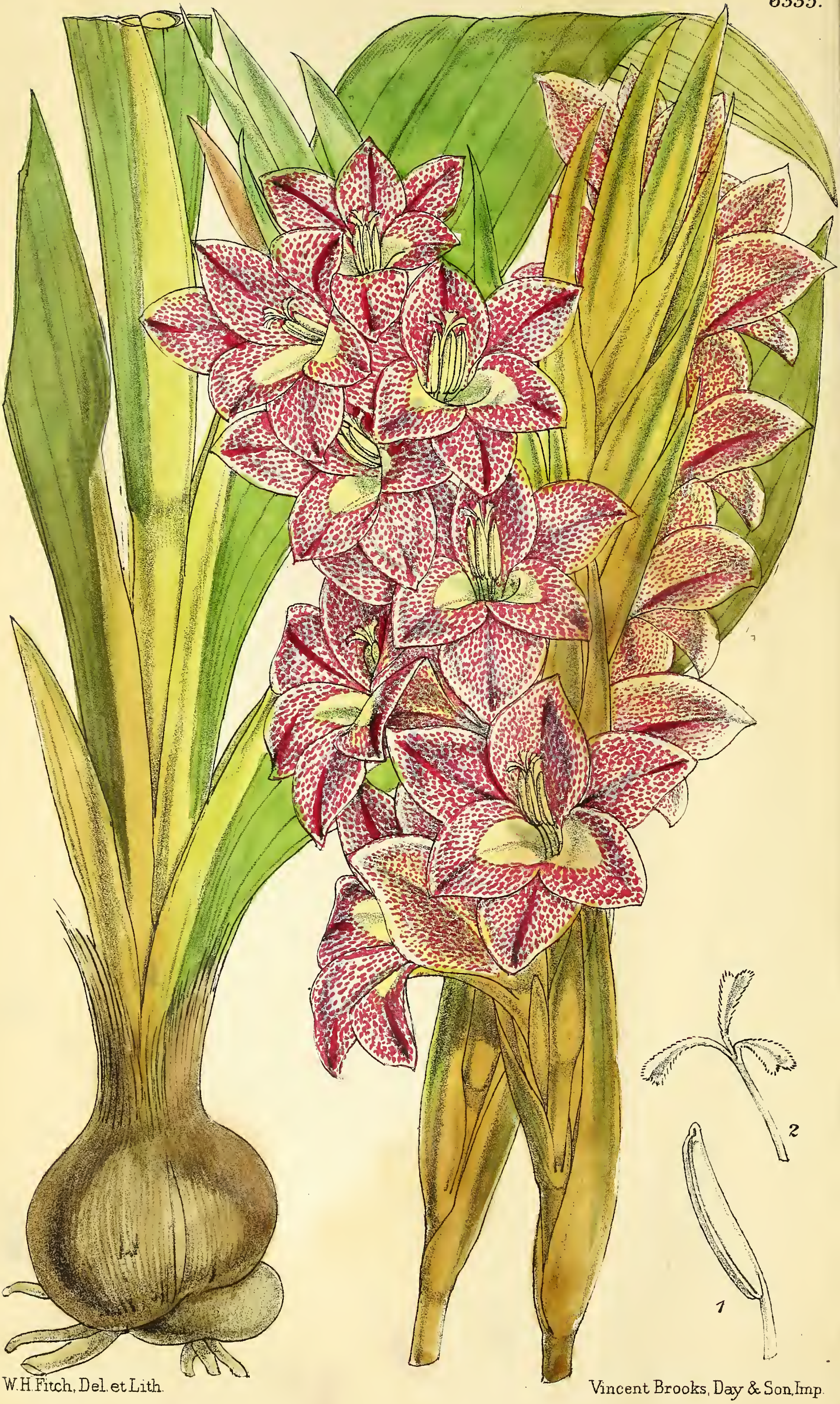
The pure ivory-white nodding spathes, freely developed amongst the clustered dark shining green leaves, render this plant one of the most valuable of our stove Aroids for ornamental culture. It belongs to a small genus consisting altogether of but four or five species, peculiar to Columbia, Peru, and Northern Brazil.

DESCR. *Stem* erect or ascending two to three feet high, terete, glabrous, about as thick as the thumb, giving off copious ærial roots from the lower nodes. *Leaves* rather numerous, dark-green and shining above, paler beneath, lamina obliquely-oblong or ovate-lanceolate, acute or acuminate, base unequally rounded; midrib depressed above, prominent beneath, venation rather obscure; about six to seven inches long, two to three inches broad; petiole closely amplexicaul, laterally compressed and slightly channelled

DECEMBER 1ST, 1877.

above, about one inch in length; the sheath three to four inches long. *Peduncle* slender, erect, recurved at the extremity, equalling or shorter than the leaves. *Spathe* ivory-white, roundish, deeply concave, apiculate, at length deciduous. *Spadix* distinctly pedunculate, shorter than the spathe, about two inches long, cylindrical, obtuse, densely covered with hermaphrodite flowers. *Perianth* wanting. *Stamens* 4, filaments flattened, dilated below; anthers 2-celled, cells broadly divergent at base, at apex ultimately confluent. *Ovary* turbinate, truncate, 4–6-sided, 2-celled (not 1-celled, as figured), with 4–6 erect ovules in each cell; upper portion of the ovary solid; stigma sessile, centrical.—*D. Oliver.*

Fig. 1, Ovary and stamens; 2, detached stamen; 3, transverse section of ovary, the dissepiment not shown; 4 and 5, longitudinal sections of ovary:—*all magnified.*



W. H. Fitch, Del. et Lith.
Vincent Brooks, Day & Son, Imp.

TAB. 6335.

GLADIOLUS ECKLONI.

Native of the Cape of Good Hope.

Nat. Ord. IRIDACEÆ—Tribe GLADIOLEÆ.

Genus GLADIOLUS, *Tourn.* (*Baker in Journ. Linn. Soc.* vol. xvi. p. 170).

GLADIOLUS *Eckloni ;* bulbo magno globoso, collo setoso, tunicis brunneis in fibras parallelas dissolutis, foliis productis circiter 4 ensiformibus acutis subpedalibus glabris rigide coriaceis venis et marginibus incrassatis, caule subpedali folioso, spica densa 6–12-flora semipedali, spathæ valvis magnis lanceolatis, perianthii tubo curvato 9–12 lin. longo, limbi crebre minute purpureo-rubro punctati segmentis tubo æquilongis, tribus superioribus ovatis vel oblongis obtusiusculis, tribus inferioribus minoribus unguiculatis, staminibus limbo duplo brevioribus, filamentis brevissimis, stigmatibus cuneatis antheras superantibus.

G. Eckloni, *Lehm. ; Klatt in Linnæa*, vol. xxxii. p. 712 ; *Baker in Journ. Linn. Soc.* vol. xvi. p. 175.

NEUBERIA longifolia, *Ecklon, Topog. Verz.* p. 37 (nomen solum).

G. carneus, *Klatt in Linnæa*, vol. xxxii. p. 722, non *Delaroche.*

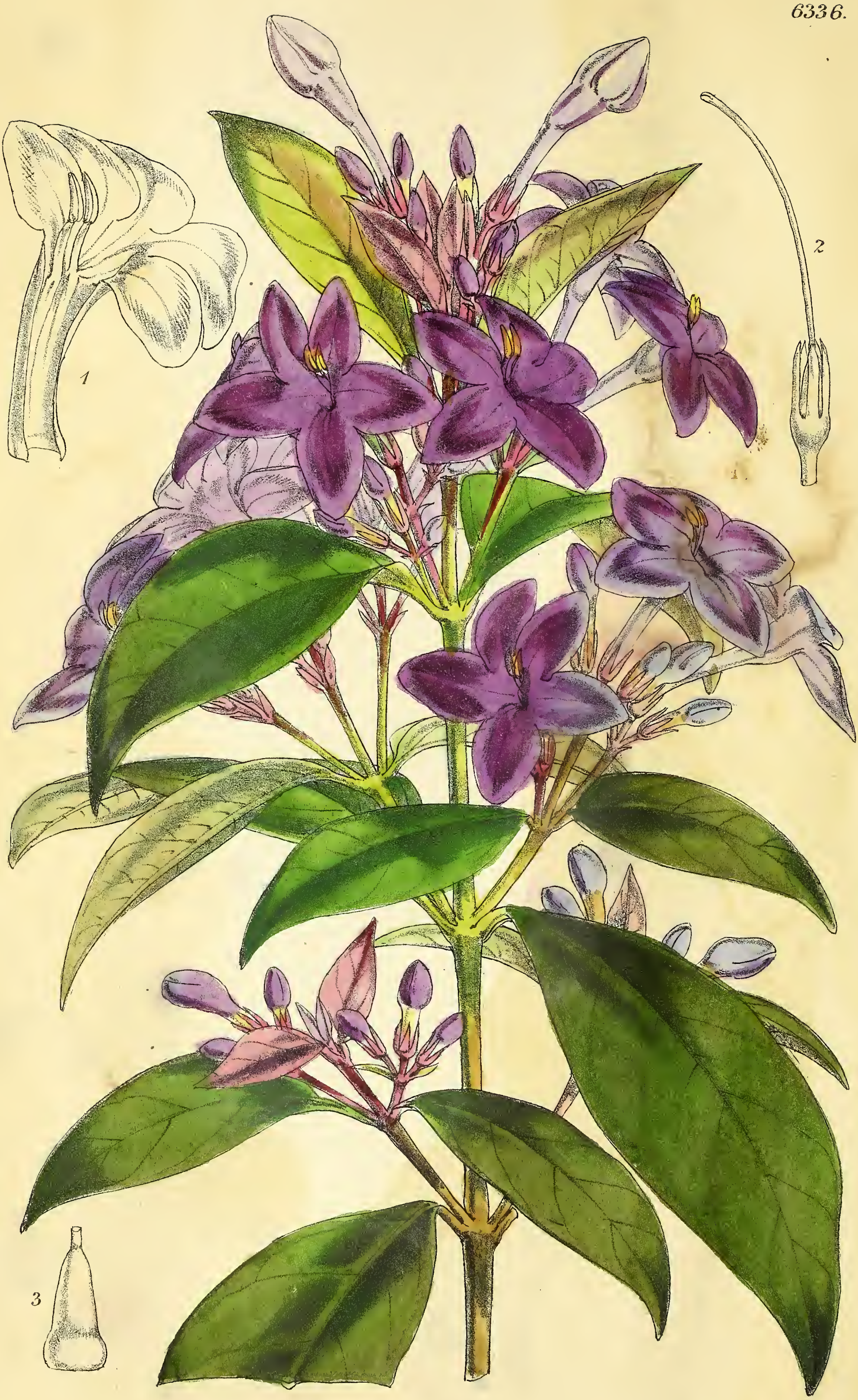
This is a most distinct and beautiful species of Gladiolus, marked by its comparatively dwarf habit, ensiform leaves, and as compared with the best-known Cape species small flowers with innumerable minute spots of bright red purple on a pale groundwork. It is widely spread in South Africa extending from Uitenhage northward through Kaffraria to Natal, and inland to Basuta-land and the Transvaal. As it ascends to a height of three thousand or four thousand feet on the Katberg, we may fairly expect it to be as hardy in England as any of the Cape species. For the specimen figured we are indebted to Mr. Elwes, who flowered it at Cirencester in October. He procured it from Mr. Wilson Saunders, who had it from Mr. Thomas Cooper from the Drakensberg. We confidently expect it will prove a popular favourite.

DECEMBER 1ST, 1877.

DESCR. *Bulb* globose, an inch and a half in diameter, the neck crowned with long bristles and the brown tunics splitting up more or less into parallel fibres. Produced distichous *root-leaves* usually four to a stem, ensiform, acute, rigidly coriaceous, glabrous, attaining a breadth of an inch or more at the middle, about a foot long, with the margins and main nerves much thickened. *Stem* about a foot long below the spike, sheathed with three or four reduced leaves. *Spike* dense, six to twelve-flowered, reaching a length of half a foot. *Spathe-valves* green and moderately firm in texture at the flowering time, lanceolate, the outer one much the largest, two or three inches long. *Ovary* small, oblong; perianth-tube curved, an inch or rather less long; limb about as long as the tube, the three upper segments ovate or oblong, subobtuse, the three lower smaller and unguiculate. *Stamens* inserted at the throat of the tube not more than half as long as the segments; filaments very short, the cuneate stigmas just overtopping the anthers.—*J. G. Baker.*

Fig. 1, Stigmas and summit of the style; 2, a single stamen:—*both magnified.*

6336.



W.H. Fitch, Del. et Lith.

Vincent Brooks, Day & Son, Imp.

TAB. 6336.

ERANTHEMUM LAXIFLORUM.

Native of Polynesia.

Nat. Ord. ACANTHACEÆ.—Tribe ERANTHEMEÆ.

Genus ERANTHEMUM, *Linn.* (*Benth. et Hook. fil. Gen. Plant.* vol. ii. p. 1097).

ERANTHEMUM *laxiflorum;* fruiticosum glaberrimum, foliis ovalibus vel ovato-oblongis obtusiuscule acuminatis basi angustatis, pedunculis axillaribus folio brevioribus sæpius bifoliiferis cymosim pauci- vel multifloris, pedicellis sæpe calyce longioribus, laciniis calycinis subulatis, corolla purpurea hypocraterimorpha lobis subæqualibus subellipticis obtusis.

E. laxiflorum, *A. Gray in Proc. Am. Acad.* vol. v. p. 349; *Seemann, Fl. Vitiensis*, p. 185, tab. 42.

For this very desirable addition to our autumn-flowering Acanthads we are indebted to Messrs. Veitch, for whom it was introduced from the New Hebrides. Specimens are also in the Kew Herbarium from the Fiji Islands, collected by the late Dr. Seemann, where he states (l. c.) that it is frequently cultivated by the European settlers as an ornamental plant.

DESCR. *Shrub* or half-shrub attaining from two to four feet in height, wholly glabrous; stem smooth subterete or obscurely tetragonous. *Leaves* petiolate,. oval or lanceolate or ovate-oblong, narrowed to each end, apex scarcely acute, of the flowering branches usually two to three and a half inches long; two-thirds to one and a quarter of an inch broad, the lower ones, according to Dr. Seemann sometimes eight to nine inches long and four to five inches broad; petioles of upper leaves one-sixth to one-half of an inch long. *Cymes* few- or many-flowered, axillary, pedunculate, usually with a pair of foliaceous bracts; pedicels equalling or exceeding the calyx. *Calyx* divided to nearly the base into five erect subulate subequal segments, several times shorter than the corolla-tube. *Corolla* purple, hypocrateriform; tube cylindrical, exceeding the five-partite spreading limb, the segments of which are approximately equal, ovate-elliptical, rather obtuse. *Stamens* two, a little exserted, anthers recurved at length, each with two contiguous equal unappendaged cells. *Ovary* oblong, conical, glabrous.—*D. Oliver.*

Fig. 1, Corolla laid open; 2, calyx and pistil; 3, ovary:—*enlarged.*

INDEX

To Vol. XXXIII of the Third Series, or Vol. CIII. of the Work.

6329 Æchmea (Chevalliera) *Veitchii.*
6292 Agave (littœa) Sartorii.
6320 Allium unifolium.
6333 Alloplectus peltatus.
6301 Aloe chinensis.
6324 Aloe tricolor.
6326 Arthropodium neo-caledonicum.
6277 Bauhinia petiolata.
6331 Bollea Lalindei.
6285 Boronia elatior.
6323 Buddleia asiatica.
6330 Calceolaria lobata.
6289 Calliphruria subedenta.
6287 Camassia esculenta, var. Leichtlinii.
6307 Carissa grandiflora.
6315 Ceropegia barkleyi.
6279 Cordia decandra.
6296 Cypripedium Haynaldianum.
6319 Dendrobium crystallinum.
6327 Dracæna reflexa.
6281 Dracocephalum speciosum.
6276 Drimiopsis Kirkii.
6294 Dyckia frigida.
6314 Epidendrum Sophronitis.
6336 Eranthemum laxiflorum.
6321 Fritillaria acmopetala.
6321 Fritillaria dasyphylla.
6335 Gladiolus Eckloni.
6291 Gladiolus ochroleucus.
6298 Globba Schomburgkii.
6284 Gongora portentosa.
6302 Haplopappus spinulosus.
6305 Houlletia picta.
6282 Hypolytrum latifolium.
6306 Iris speculatrix.
6332 Lilium neilgherrense.
6274 Livistona australis.
6303 Lycaste Linguella.
6273 Masdevallia attenuata.
6312 Mesembryanthemum Cooperi.
6299 Mesembryanthemum Sutherlandii.
6325 Microstylis Josephiana.
6311 Notylia albida.
6317 Odontoglossum cirrhosum.
6278 Oncidium cheirophorum.
6322 Oncidium Euxanthinum.
6286 Pectis angustifolia.
6318 Pitcairnia flavescens.
6288 Restrepia antennifera.
6290 Rondeletia Backhousii.
6300 Salvia Schimperi.
6283 Solanum acanthodes.
6334 Stenospermatium Wallisii.
6272 Telfairia occidentalis.
6293 Thapsia garganica.
6295 Tigridia lutea.
6309 Tillandsia usneoides.
6313 Tovaria oleracea.
6310 Tulipa Orphanidea.
6304 Tulipa pulchella.
6308 Tulipa undulatifolia.
6280 Tupistra macrostigma.
6328 Vanda cærulescens, var. Boxallii.
6275 Xanthisma texanum.
6297 Xanthorrhœa minor.
6316 Yucca orchioides, var. major.

Williams
× Time

SMITHSONIAN INSTITUTION LIBRARIES
3 9088 01423 6921